DOCUMENT RESUME

ED 143 123	EA 009 848

TITLE	The National School Lunch Program--Is It Working? Report to the Congress.
INSTITUTION	Comptroller General of the U.S., Washington, D.C.
SPONS AGENCY	Congress of the U.S., Washington, D.C.
REPORT NO	PAD-77-6
PUB DATE	26 Jul 77
NOTE	183p.; Some tables may not reproduce clearly due to small print
AVAILABLE FROM	U.S. General Accounting Office, Distribution Section, Room 4522, 441 G Street N.W., Washington, D.C. 20548 (free to officials of Federal, State, and local governments; members of the press; college libraries, faculty members, and students; and non-profit organizations; $1.00 others)
EDRS PRICE	MF-$0.83 HC-$10.03 Plus Postage.
DESCRIPTORS	Breakfast Programs; Eating Habits; Efficiency; Elementary Secondary Education; Federal Aid; Federal Programs; Food Standards; *Health Needs; *Lunch Programs; *Nutrition; Nutrition Instruction; *Program Evaluation
IDENTIFIERS	*National School Lunch Program

ABSTRACT

The National School Lunch Program is designed to safeguard schoolchild health by improving and/or maintaining levels of nutrition, and strengthen the agricultural economy by stimulating food demand. The General Accounting Office (GAO) examined whether the program is meeting its legislative objectives and analyzed available information on what is known and not known about the effectiveness of the program. Areas discussed include health and agricultural impact, student participation, and operating efficiency. GAO recommends that the Congress (1) provide policy guidance indicating specifically what the purposes of the program should be and have the program evaluated accordingly; (2) define the priority of each purpose and direct how the program is to be evaluated; (3) require the Department of Health, Education, and Welfare (HEW) to assist the Department of Agriculture in determining the program's contribution to children's health; (4) review Agriculture's program evaluation plan to be sure it will support the needs of congressional oversight; and (5) require Agriculture to report to the Congress the results of its evaluation. (Author/MLF)

****
* Documents acquired by ERIC include many informal unpublished *
* materials not available from other sources. ERIC makes every effort *
* to obtain the best copy available. Nevertheless, items of marginal *
* reproducibility are often encountered and this affects the quality *
* of the microfiche and hardcopy reproductions ERIC makes available *
* via the ERIC Document Reproduction Service (EDRS). EDRS is not *
* responsible for the quality of the original document. Reproductions *
* supplied by EDRS are the best that can be made from the original. *
****

EA

REPORT TO THE CONGRESS

UNITED STATES GENERAL ACCOUNTING OFFICE

BY THE COMPTROLLER GENERAL OF THE UNITED STATES

U S DEPARTMENT OF HEALTH,
EDUCATION & WELFARE
NATIONAL INSTITUTE OF
EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

The National School Lunch Program--Is It Working?

Departments of Agriculture and Health, Education, and Welfare

This report identifies shortcomings in both the evaluation and performance of the School Lunch Program. It recommends specific actions for improving the effectiveness and efficiency of program services.

Areas discussed include

--schoolchild health,

--children in need of nutrition,

--operating efficiency, and

--relationship of the program to the Nation's agricultural economy.

PAD-77-6

JULY 26, 1977

COMPTROLLER GENERAL OF THE UNITED STATES
WASHINGTON, D.C. 20548

B-111810

To the President of the Senate and the
Speaker of the House of Representatives

This report describes what is known about the National School Lunch Program's effectiveness in achieving legislative objectives. It is being released concurrently with a companion summary (PAD-77-7).

Officials of the Department of Agriculture and the Department of Health, Education, and Welfare have been given the opportunity to review and comment on this report. Their views have been incorporated where appropriate.

Our review was made pursuant to the Budget and Accounting Act, 1921 (31 U.S.C. 53), the Accounting and Auditing Act of 1950 (31 U.S.C. 67), and the Legislative Reorganization Act of 1970 as amended by title VII of the Congressional Budget Act of 1974 (31 U.S.C. 1154).

Copies of the report are being sent to the Director, Office of Management and Budget; the Secretary of Agriculture; and the Secretary of Health, Education, and Welfare.

Elmer B. Staats
Comptroller General
of the United States

COMPTROLLER GENERAL'S
REPORT TO THE CONGRESS

THE NATIONAL SCHOOL LUNCH
PROGRAM--IS IT WORKING?
Departments of Agriculture and
Health, Education, and Welfare

DIGEST

The National School Lunch Program is designed to

--safeguard schoolchild health by improving and/or maintaining levels of nutrition and

--strengthen the agricultural economy by stimulating food demand.

To these ends, the Secretary of Agriculture requires that lunches served under the program meet a specified food pattern (type A) providing, on average, one-third of each child's daily diet.

Federal assistance to States in serving the lunches is based on the number of meals served. This, in cash and commodities, amounted to more than $1.7 billion in fiscal year 1975. Over 4 billion lunches were served, about 1.6 billion being provided free or at reduced prices to children from economically needy families.

The program is available in most of the Nation's schools and is the largest of several federally supported child-feeding programs.

RECOMMENDATIONS TO THE CONGRESS

The school lunch program provides adequately for the large-scale feeding of children, but it could be much more effective and efficient than it is.

GAO thinks the Congress should:

--Provide policy guidance indicating specifically what the purposes of the program

Tear Sheet. Upon removal, the report cover date should be noted hereon.

should be and have the program evaluated accordingly.

- --Define the priority of each purpose and direct how the program is to be evaluated.
- --Require the Department of Health, Education, and Welfare (HEW) to assist the Department of Agriculture in determining the program's contribution to children's health.
- --Review Agriculture's program evaluation plan to be sure it will support the needs of congressional oversight.
- --Require Agriculture to report to the Congress the results of its evaluation.

Since legislation prohibits the school lunch program from imposing any requirement relative to the teaching of nutrition to schoolchildren, the effectiveness of nutrition education programs is not addressed in this report. Such programs are, however, currently being reviewed by GAO on a broader scale.

GAO OBSERVATIONS

GAO examined the question of whether the program is meeting its legislative objectives and analyzed available information on what is known and not known about the effectiveness of the program. Areas discussed include:

- --Health impact. Does the program support the health of schoolchildren? (See part I.)
- --Agricultural impact. Does the program increase demand for agricultural commodities? (See part II.)
- --Participation. Do children in need of nutrition eat the lunches? (See part III.)

--Operating efficiency. Are lunches provided as inexpensively as possible? (See part IV.)

The school lunch program has been in operation for three decades. Though many reports over the years contain important information about the program, this information generally has not been assembled in a way to assist the Congress in reviewing the program's budget, in considering program revisions, and in overseeing program administration.

Shortcomings in program evaluation are not necessarily indicative of actual performance or of the program's potential to support schoolchild health. Nutrition--the lack, excess, or quality of it--appears to be a problem for millions of schoolchildren. (See chs. 2 and 3.)

HEALTH IMPACT

The type A lunch is a critical factor in the program's success. The quantity and type of food included in the lunch largely determine cost and the amount of commodities eaten; the price and presentation of the lunch determine how well the program reaches children; and the nutritional qualities of the lunch determine how well the program safeguards health.

Although studies show that the school lunch, when paired with a nutritional supplement or with the school breakfast, can affect the nutritional levels of schoolchildren, their findings about how the lunch itself affects nutritionally deprived and nutritionally adequate participants are inconclusive. (See ch. 4.)

Although the type A lunch appears to be effective in increasing food consumption, GAO is not convinced that it is the best choice for a nutritional standard. The absence of any indication that the program is having a net benefit on the health of either needy or nonneedy children raises questions about the nutritional value of the lunch.

In comparison with other types of lunches, the type A lunch:

--Appears relatively ineffective in achieving the program's nutritional objective. The lunch, a standard meal served to all, does not appear effective in combating children's diverse nutritional problems. An alternative standard--providing more flexibility in the pattern and/or portion sizes--may improve the program's nutritional impact. (See p. 38.)

--May increase the cost of program lunches (thereby reducing participation of students who pay). (See ch. 7 and p. 123.)

--Is often presented in a form or content which discourages student participation and contributes to food waste. (See pp. 68 to 76.)

AGRICULTURAL IMPACT

GAO found consistent indications that the program has strengthened overall demand for farm products. However, possibility of conflict between the program's agricultural and nutritional provisions was noted. (See chs. 5 and 11.)

Shifting eating habits and needs over the past 30 years suggest that the program's objectives should be reassessed. Present agricultural conditions are considerably different. Conditions of oversupply are less frequent and concerns about the agricultural economy have generally tended toward the problem of shortages.

PARTICIPATION

Between 1971 and 1975, an expanded free/reduced-price program substantially increased the participation of low-income children; but, because much of the increase was offset by declines in the participation of regular-price students, overall participation tended to remain constant. (See ch. 6.)

The shift toward low-income children (the population group with the greatest prevalence of nutritional problems) probably increased the program's potential as a nutrition aid. On the other hand, the program became less effective in reaching the regular-price students. (See pp. 38 and 88.)

Although many authorities have expressed a desire to improve participation levels, the question remains: How? Available studies, though beneficial in identifying some of the "factors" affecting participation, help little in estimating the impacts of various policy alternatives. (See ch. 7.) For example:

--Price-participation relationships are an extremely weak forecasting tool.

--The relative importance (rank) of the individual factors affecting participation has not been clearly defined.

--Better information is needed to assess the effects a change in participation would have and to direct the program toward children in greatest need.

OPERATING EFFICIENCY

While it is true that the school lunch program's operating expenses increased rapidly over the 1973-75 period, the main cause was inflation. The real cost of producing a program lunch actually declined. (See ch. 9.)

A potential exists for Agriculture to reduce program food costs by more than $100 million per year without sacrificing nutritional impact. (See ch. 9.)

Agriculture's commodity distribution program helps small school systems save on food costs. A flat-rate disbursement of cash in lieu of commodities would provide a disproportionate benefit for large school systems because of economies of scale in procurement. (See p. 115.)

RECOMMENDATIONS

The Secretary of Agriculture should:

- --Require a formal, systematic evaluation of how well the school lunch program meets legislative objectives. The evaluation should use the expertise and resources of the Deaprtment of Health, Education, and Welfare and should report its results to the Congress in a timely manner.

- --With assistance from HEW, (1) determine the nutritional standards needed to best safeguard schoolchild health, (2) if found desirable, revise the program's meal regulations to reflect nutritional requirements that will give menu planners planning flexibility, (3) improve the program's cost-effectiveness, (4) encourage higher levels of student participation, and (5) reduce food waste.

- --Determine the effect of commodity distribution surges on the school lunch program's nutritional objective and, if surges are determined to have an important effect, implement corrective procedures so that agricultural considerations do not compromise the program's nutritional effectiveness.

- --Improve the accuracy of participation forecasts and determine the relative importance of individual factors (including price) which affect participation.

- --Determine how a change in program participation affects the magnitude and characteristics of unmet nutritional needs in the nonparticipant population.

- --Examine approaches and take actions to improve the economy of small and medium-sized school systems' food procurement.

AGENCY ACTIONS AND UNRESOLVED ISSUES

HEW concurred with GAO's recommendations and said that it would assist Agriculture in developing meal standards and in evaluating the program's nutritional impact. HEW also provided technical comments pertaining to the relationship between nutrition and health which were used in preparing this report.

Agriculture generally agreed with the recommendations that do not involve the program's nutritional impact, and has acted or agreed to act to implement them. (See pp. 79, 105, and 124.) It did not respond to the recommendation for determining the relationship between participation levels and the unmet nutritional needs of the target population. (See p. 105.)

Agriculture said it recognized the need for a program evaluation and that a draft of the Food and Nutrition Service's research program for the next 5 years, now under review, includes the development of a methodology for assessing the school lunch program's nutritional impact. It also said that "it is questionable that such a study would be successful in accomplishing its objectives." Since GAO has not reviewed the research plan, it has no means of assessing whether or not the program evaluation will be effective. Agriculture, however, made no mention of a positive commitment to start the evaluation, nor did it reply to GAO's recommendation that such an evaluation be coordinated with congressional oversight needs and supported by HEW. (See p. 51.)

Agriculture disagreed with the recommendation pertaining to nutritional standards. It said that such standards would be difficult to determine and that, while it shared GAO's concerns regarding the type A pattern's effect on participation and food waste, there were ways of addressing such concerns short of abandoning nationally established meal standards. (See p. 79.)

There is no doubt that the nutritional aspects of the school lunch program are complicated and difficult to evaluate. The consequence of not doing such evaluations, however, is to leave some very important issues to chance. Therefore, GAO believes that Agriculture should take positive action on the recommendations outlined in this report.

Contents

Page

DIGEST i

CHAPTER

1 INTRODUCTION 1
  Legislative history 1
  Program administration 5
  Scope of review and report organization 7

PART I
ABILITY TO SAFEGUARD HEALTH 9

2 WHAT IS THE RELATIONSHIP BETWEEN NUTRITION AND HEALTH? 11
  What is good nutrition? 12
  Benefits of improved nutrition 14
  What is the health threat? 15
    Overconsumption recognized as health threat 16
    Deficiencies in RDA nutrition may also affect health 17
  Implications for NSLP 19

3 DEFINING THE SCHOOLCHILD'S NUTRITION PROBLEM 21
  Complexities of measurement 21
  Ten-State Nutrition Survey 22
    Nutrient intakes increased by school lunch programs 27
  Preschool Nutrition Survey 30
  Health and Nutrition Examination Survey 32
  Implications for NSLP 37

4 THE SCHOOL LUNCH PROGRAM'S NUTRITIONAL IMPACT 40
  Nutritional impact undetermined 40
    Existing studies 41
    Evaluation is possible 46
  Need to upgrade nutrition education 48
  Need for further evaluation 49
  Recommendation to the Secretary of Agriculture 51
  Agency comment and our evaluation 51
  Recommendations to the Congress 52

CHAPTER Page

PART II
ABILITY TO ACHIEVE AGRICULTURAL OBJECTIVES 54

5 PROBLEMS IN ACHIEVING AGRICULTURAL GOALS OF THE SCHOOL LUNCH PROGRAM 55
  NSLP's consumption of agricultural products 56
    Local market purchases 57
    An outlet for surplus food 57
  Impact on the agricultural economy 59
    Commodity-by-commodity approach 60
    Sector-by-sector approach 63
  Possible conflict with nutrition objectives 68
    Differences in type A pattern and the program's nutritional target 68
    Some food service directors believe modifications in meal pattern will improve participation and decrease waste 70
    USDA recognizes the need for improvements in the NSLP lunch 72
    Timing of commodity distributions has important impact on nutritional objectives 77
  Have agricultural goals been satisfied? 77
  Recommendations to the Secretary of Agriculture 78
  Agency comments and our evaluation 79
  Recommendation to the Congress 80

PART III
PROGRAM COVERAGE 81

6 PARTICIPATION TRENDS 82
  NSLP availability in schools 82
  Student participation 85
    Regular and reduced-price/free participation 87

7 FACTORS AFFECTING PARTICIPATION 89
  Influence of noneconomic factors 89
    Alternative food sources 89
    Attitude of school administrators 90
    Menu choice and preparation 91
    Regular-price participation rates not affected by size of free lunch program 92
  Influence of price 92
    Parents aware of relative prices 93
  Price-participation relationships provide a weak forecasting tool 95

CHAPTER Page

- Better information needed to assist decisionmakers 98
  - Multifactor relationships 99
  - Regular-price participation declines as per capita income advances 102
  - Matching resources with needs 103
- Recommendations to the Secretary of Agriculture 104
- Agency comments 105

PART IV
PROGRAM COSTS 106

8 USDA FOOD DISTRIBUTIONS PROVIDE COST SAVINGS 107
- Determining the cost savings of USDA food distributions 108
  - Cost of USDA foods increased by intrastate distribution expenses 109
  - USDA foods less expensive than schools' open market purchases 109
- Differing opinions on cash in lieu of commodities 113
- Impact of suspending commodity program 115

9 FACTORS AFFECTING COST GROWTH 117
- Growth in cost of producing an NSLP lunch 118
  - Component costs 118
  - Cost variations due to economies of scale 121
- Implications for cost savings 123
- Recommendation to the Secretary of Agriculture 124
- Agency comments 124

10 FEDERAL, STATE, AND LOCAL SUPPORT FOR THE SCHOOL LUNCH PROGRAM 125
- Sources of NSLP funding 125
- Federal funds carry increasing share of NSLP costs 127
- Observations on the design of school lunch subsidies 128

PART V
PROGRAM EVALUATION ISSUES 131

11 EVALUATION RESEARCH: ISSUES, DISCUSSION, AND MATTERS FOR CONSIDERATION 132
- Major program issues remain unresolved 132
- Issue discussion 133

CHAPTER Page

11 Health considerations 133
Agricultural considerations 134
Participation considerations 136
Cost considerations 137

APPENDIXES

I April 20, 1977, letter from the Acting Administrator, FNS 138
II March 14, 1977, letter from the Acting Deputy Administrator, ERS 154
III April 14, 1977, letter from the Inspector General, HEW 163

ABBREVIATIONS

CPI	Consumer Price Index
DMF	decayed, missing, and filled
ERS	Economic Research Service
FNS	Food and Nutrition Service
GAO	General Accounting Office
HANES	Health and Nutrition Examination Survey
HEW	Department of Health, Education, and Welfare
NSM	Nutrient Standard Menu
NSLP	National School Lunch Program
PNS	Preschool Nutrition Survey
RDA	Recommended Dietary Allowances
SES	socioeconomic status
TSNS	Ten-State Nutrition Survey
USDA	Department of Agriculture

LIST OF TABLES

Page

2.1 USDA estimates of annual savings through improved nutrition 14
2.2 The 10 leading causes of death, United States, 1974 (based on a 10-percent sample of deaths) 16
3.1 Relative importance of nutritional problems--Ten-State Nutrition Survey (1968-1970) 25
3.2 Distribution of nutrient intakes for males (12-14 yrs.)--Ten-State Nutrition Survey (1968-1970) 26
3.3 Comparison of mean nutrient intake of persons 10 through 16 years of age participating in school lunch programs with those not participating, Ten-State Nutrition Survey (1968-1970) 28
3.4 Estimated mean nutrient intakes as a percent of RDA for 6-11 and 12-17-year-olds: United States, 1971-72 (HANES preliminary) 34
3.5 Low biochemical indices for 6-11 and 12-17-year-olds: United States, 1971-72 (HANES preliminary) 36
3.6 Estimated number of 6-17-year-olds with low biochemical indices: United States, 1971-72 (HANES preliminary) 37
4.1 Changes in classification of children from fall to spring--Cornell study 44
5.1 NSLP food costs, fiscal year 1971-75 57
5.2 Iowa school full lunch program support for certain commodities 61
5.3 Changes in U.S. business receipts and gross national product associated with Federal contributions to NSLP, fiscal year 1974 64
5.4 Net changes in job numbers resulting from Federal contributions to NSLP, fiscal year 1974 66
5.5 School Lunch Pattern, 1976 (proposed) 73
5.6 Concerns about the type A pattern and changes to help alleviate the concerns in the 1976 pattern 74
6.1 Total enrollment and participating students in NSLP schools, fiscal year 1971-75 85
6.2 Eligible and participating students in the regular-price and free or reduced-price lunch program, fiscal year 1971-75 (estimated) 88
7.1 Sample sack lunches used in Washington State study (1970 prices) 94
7.2 Number of States participating in NSLP, by regular prices charged and daily participation rates, fiscal year 1973 95
7.3 Regular-price participation as a function of per capita income and price, United States, fiscal year 1973 100

Page

8.1 USDA commodity distributions to NSLP, fiscal year 1971-75 107
8.2 Average prices paid by school systems for foods by source of purchase, July 1973-April 1974 110
8.3 USDA food cost per lunch--fiscal year 1974 112
8.4 Comparison of food costs: USDA and open market 112
9.1 NSLP cost growth--fiscal year 1970-75 118
9.2 Component costs of NSLP Lunch--fiscal year 1970-74 119
9.3 Highlighting the factors affecting cost growth of NSLP lunch (meal cost for fiscal year 1970 adjusted to fiscal year 1974 prices and compared with actual fiscal year 1974 costs) 120
9.4 Average enrollment and daily lunches served per NSLP school, fiscal year 1970-74 122
10.1 School lunch federal assistance rates(Jan.-June 1976) 126
10.2 Sources of NSLP funding, fiscal year 1970-75 127
10.3 NSLP participation categories, fiscal year 1972-75 128
10.4 Funding components of the fiscal year 1974 school lunch (estimated) 129

LIST OF FIGURES

3.1 Percent obesity in adolescents--Ten-State Nutrition Survey 26
3.2 Mean decayed, missing, and filled (DMF) permanent teeth for persons 10 through 16 years of age by grams of carbohydrate consumed between meals--Ten-State Nutrition Survey 27
5.1 Total nutrients served and eaten: elementary schools 75
6.1 Growth in NSLP availability, fiscal years 1950-75 83
6.2 NSLP participation as percent of U.S. enrollment, fiscal year 1974 86
7.1 Price-participation relationships for regular-price students, United States, fiscal year 1973 97

CHAPTER 1

INTRODUCTION

The National School Lunch Program (NSLP), authorized by the National School Lunch Act of 1946 (Public Law 79-396) and expanded in more recent legislation, is the largest of several federally funded child-feeding programs.

As stated in the authorizing legislation, NSLP's objectives are "* * * to safeguard the health and well-being of the Nation's children and to encourage the domestic consumption of nutritious agricultural commodities and other food." To do this, the Federal Government encourages and assists public and nonprofit private schools below college level to serve well-balanced lunches to children. This assistance includes:

--A basic cash and donated food subsidy for all lunches, with additional cash reimbursement for meals served free or at reduced prices to children who cannot pay the full price.

--Nonfood assistance funds to help needy schools acquire food service equipment.

--State administrative expense funds to partially reimburse States for undertaking the additional administrative activities required by the program.

--Limited funds to undertake program-related nutritional education and training projects, studies, and surveys of food service requirements, and special development projects.

From 1947 to 1975 NSLP has increased in Federal expenditure from less than $100 million to more than $1.7 billion (cash and commodities). In fiscal year 1975, about 88,800 schools (approximately 81 percent of the Nation's total) were members of NSLP, making program lunches available to almost 88 percent of all schoolchildren. Over 25 million children (56.7 percent of the NSLP enrollment) participated in the program; nearly 39 percent of these children received free or reduced-price lunches.

LEGISLATIVE HISTORY

Federal assistance in feeding schoolchildren has existed for roughly four decades. The U.S. Department of

Agriculture (USDA), authorized by section 32 of Public Law 74-320, began food distribution to schools during the mid-1930s. One objective was to provide nutritious, low-cost meals to children, but the primary design was to create an outlet for foods acquired under surplus-removal programs. When wartime demands in the early 1940s drained these surpluses, USDA initiated the Nation's first cash assistance program by partially subsidizing schools for local food purchases.

After the war, school lunch participation was approximately 4 million children. Uncertain of year-to-year funding, schools were reluctant to enter the program or to expand existing programs. Recognizing this shortcoming, the Congress enacted the National School Lunch Act of 1946 (Public Law 79-396). This act authorized the creation of NSLP. The act established three basic operating standards:

--School lunches should conform to nutritional standards established by USDA.

--Free or reduced-price lunches should be provided to children unable to pay the regular price.

--The program should be operated on a nonprofit basis.

USDA's food distribution authority was further expanded by section 416 of the Agricultural Act of 1949 (7 U.S.C. 1431), which authorized donations of food acquired by the Commodity Credit Corporation under price-support programs.

In 1962 the criteria for apportioning funds were revised to provide a more equitable distribution and to encourage program expansion. At the same time, section 11, Public Law 87-823, was added (but not funded until 1966) to provide special financial assistance to schools serving students from impoverished areas.

The Child Nutrition Act of 1966 (Public Law 89-642), recognizing "the demonstrated relationship between food and good nutrition and the capacity of children to develop and learn," further amended and expanded the National School Lunch Act of 1946.

In 1970 the NSLP legislation was again amended and expanded (Public Law 91-248) to include administrative and procedural changes. Strengthening the program's provisions for serving free or reduced-price lunches to economically needy children, this act (1) mandated that free lunches be served to needy children and (2) provided specific guidelines to be used in determining eligibility for free and reduced-price lunches. (The serving of reduced-price lunches remained a State option, however.)

Public Law 92-153, approved November 5, 1971 (85 Stat. 419), raised the reimbursement rates to 6 cents for each regular-price lunch and an additional 40 cents for each free or reduced-price lunch served.

Further refinements were added with the passage of the Child Nutrition Act of 1972 (Public Law 92-433). This legislation guaranteed a minimum Federal subsidy on a "performance funding" basis (i.e., per meal served) and increased the reimbursement rate from 6 cents to not less than 8 cents per lunch. It also rescinded USDA's authority to regulate selling food items in competition with programs authorized under the Child Nutrition Act and the National School Lunch Act. Before this legislation, selling of competitive foods had been prohibited while the school lunch was being served. The Congress emphasized that this action was not intended to show disapproval of existing regulations but to more appropriately vest regulatory authority in State and local agencies.

Public Law 93-150, enacted in November 1973, extended the performance funding concept to section 11 special cash assistance funds. It provided an escalator concept by which average Federal payment rates are to be adjusted semi-annually to reflect changes in the Consumer Price Index for food away from home. It authorized cash payments to make up shortages in commodity distributions, and it required the Secretary of Agriculture to conduct a comprehensive study of child nutrition programs.

In 1974 NSLP legislation was again amended (Public Law 93-326). This act prescribed a minimum level of commodity assistance at 10 cents per lunch, or cash payments in lieu thereof, with provisions that the rate be adjusted on an annual basis to compensate for changes in the Consumer Price Index for food away from home. The act also raised the eligibility criteria for reduced-price lunches to 175 percent of the Secretary's income poverty guidelines, though the States retained the option of whether or not to offer reduced-price lunches.

Public Law 94-105, enacted in October 1975, represents the most recent school lunch legislation. This act

--expanded the NSLP coverage to include the Trust Territory of the Pacific Islands and, in addition to schools, any public or licensed nonprofit private residential child care institution, such as orphanages and homes for the mentally retarded.

--revised--effective January 1976--the formula under which the Secretary of Agriculture determines income poverty guidelines.

--established a mandatory reduced-price lunch program. Children from households with an annual income level which falls between the applicable income guidelines prescribed by the State for free lunches and 95 percent above the income poverty guidelines prescribed by the Secretary are to be served NSLP lunches at a price not to exceed 20 cents.

--excluded Federal funds received by a State to provide free and reduced-price lunches from the general requirement that States match every dollar of Federal funds with three dollars of State and local funds.

--directed the Secretary to establish, in cooperation with State educational agencies, administrative procedures to diminish plate waste without endangering the nutritional integrity of the NSLP lunch. In this regard, the act further specifies that senior high school students will not be required to accept foods which they do not intend to consume, but that the failure to accept offered foods will not affect the student's charge or the amount of Federal reimbursement.

The 1975 act also authorized the Secretary of Agriculture to carry out a nutrition program staff study to

> "* * * determine how States are utilizing Federal funds provided to them for the administration of the child nutrition programs * * * and to determine the level of funds needed by the States for administrative purposes. * * * As part of this study, the Secretary shall also examine the degree and cause of plate waste in the school lunch program. The Secretary shall examine possible relationships between plate waste and (1) lack of adequate menu development, (2) the service of competitive foods, and (3) the nature of the type A lunch pattern. The Secretary

shall review the study design with the appropriate congressional committees prior to its implementation, and shall report his findings together with any recommendations he may have with respect to additional legislation, to the Congress no later than March 1, 1976."[1]

PROGRAM ADMINISTRATION

The Food and Nutrition Service (FNS), USDA, is responsible for the national administration of NSLP. The program is normally administered in cooperation with State departments of education. When the State agency is prohibited by law or otherwise unable to disburse Federal funds to private schools, an FNS regional office acts as the administering agency. Participation at the local level is voluntary.

Program responsibilities are divided among the National, State, and local levels as follows.

At the national level, FNS headquarters and six regional offices:

1. Supervise the States' administration of the program.
2. Administer the program for private schools in those States where the State educational agencies are prohibited from disbursing funds to private schools.
3. Distribute commodities to the States and private schools where applicable.
4. Review State and local school operations.
5. Apportion funds to the States.
6. Provide technical and administrative assistance to States.
7. Fund the Food and Nutrition Information and Educational Materials Center at the National Agricultural Library.
8. Set standards for nutritious meals.

---

[1] USDA officials said the study will be issued in the latter part of 1977.

At the State level, educational agencies administer the program in public schools, and private schools where permitted. Each agency:

1. Submits an annual State plan of child nutrition operations for FNS approval.
2. Establishes a system of accounting under which school food authorities will report program information.
3. Maintains current records on schools' operations and accounts for program funds.
4. Determines whether the matching requirements of the act are being met.
5. Provides supervisory assistance to local schools.
6. Provides the schools with monthly information on foods determined by USDA to be in plentiful supply.
7. Investigates complaints.

At the local level, schools or school districts operate the program and determine which students are eligible for the free or reduced-price lunches. In order to receive Federal funds each school:

1. Operates on a nonprofit basis and observes limitations on the use of program funds.
2. Serves lunches meeting the minimum nutritional requirements as prescribed by the Secretary of Agriculture.
3. Offers lunch to all children attending school.
4. Provides free and reduced-price lunches for children from families with incomes below the applicable guidelines prescribed in legislation.
5. Complies with all requirements of the Civil Rights Act and related program regulations.
6. Purchases, and uses to the extent possible, commodities designated as being in abundance, and foods donated by USDA.

7. Maintains full, accurate records for supporting reimbursement claims.

SCOPE OF REVIEW AND REPORT ORGANIZATION

A considerable amount of research has been done on topics either directly or indirectly affecting NSLP. Some of the research was flawed, but many reports contain important information on program performance. The information, however, has generally not been evaluated and assembled in a synthesized form for use in determining program policies.

The purpose of this study was to scrutinize and organize available research in a way that would be useful for committees to consider in their oversight functions and responsibilities under the Congressional Budget and Impoundment Control Act of 1974 (Public Law 93-344). However, in a program as diverse as NSLP, some study limitations had to be made to fit within the manageable context of project resources.

In this regard, we focused on what we believed to be the principal issue of an NSLP evaluation--the program's effectiveness in meeting its stated legislative objectives (safeguarding health and increasing food demand). Other aspects of the program, such as its economic impact on localities and its relationship to income maintenance programs, were excluded from the scope of our work.

In addition to using available evaluation studies and research reports, we also interviewed a number of persons knowledgeable in the fields of nutrition and NSLP and discussed USDA's current and projected research on child nutrition with officials of FNS.

Our report uses the sequence shown on the next page to present a five-part study of NSLP. Parts I and II focus on the legislative goals of the program and whether or not existing program policies and procedures contribute to the attainment of those goals. Parts III and IV focus on the program's ability to encourage student participation and to achieve cost-effective operation. Finally, part V brings these independent findings together and, in context, presents an evaluation synthesis of NSLP overall.

Legislative Objectives of NSLP

Safeguard health and well-being of the Nation's children

Encourage domestic consumption of nutritious agricultural commodities and other food

Part I
Ability to Safeguard Health

- What constitutes good nutrition?
- Does improved nutrition contribute to good health?
- Can the effectiveness of a nutrition intervention program be evaluated?
- What are the characteristics of nutritionally needy children?
- Does NSLP contribute to good health?

Part II
Ability to Achieve Agricultural Objectives

- Do children consume more commodities under NSLP than if it did not exist?
- Does NSLP's consumption of commodities assist the Nation's agricultural economy?
- Do NSLP's agricultural provisions contribute to nutritional objectives?

Part III
Program Coverage

- What factors influence participation?
- What do we know about nonparticipants?
- Does nonparticipation jeopardize schoolchild health?

Part IV
Program Costs

- Do USDA commodity distributions provide cost savings?
- What are the factors affecting program cost growth?
- Is the present system of Federal assistance effective in encouraging student participation?

Part V
Program Evaluation Issues

PART I

ABILITY TO SAFEGUARD HEALTH

Although several studies have been done on NSLP, there is presently still a lack of an adequate evaluation of the program's ability to safeguard health. The impact of the program has not been isolated from external factors. As a result, we don't know for sure whether the program is having a favorable, neutral, or adverse impact on children's health. However, before proceeding, it is important to note that the terms "health," "nutrition," and "nutritional status" are not synonymous. Their definitions, as used in this report, are:

--Health, freedom from disease or ailment.

--Nutrition, the process by which plants and animals take in and utilize food materials.

--Nutritional status, the condition of an individual's health as influenced by the intake and utilization of nutrients.

For example, the intake and utilization of protein, vitamins, and other nutrients can be acceptable (implying good nutritional status), while at the same time dietary deficiencies in nonnutrient fiber (a nutrition problem) may, at least in the opinion of some authorities, increase the risk of bowel cancer (a health problem).

(Technical note: Present knowledge of nutrition-health relationships is incomplete. It is not definitely known, for example, how low the intake of iron can be without affecting health or growth and development. Similarly, there are a number of hypothesized relationships now under study (such as a link between fiber deficiencies and bowel cancer) which have yet to be confirmed or denied. Nevertheless, authorities do have opinions on many of these issues. Several such opinions alleging specific nutrition-disease relationships are cited, as opinions or as what some authorities believe, in this report. The reader is cautioned that such statements cannot be considered scientific fact.)

Because NSLP is intended to safeguard schoolchildren's health and because the generally accepted associations between nutrition and health may conceal important technical differences, we believe the definitions given above should be kept in mind when considering the following evaluative issues.

--What is good nutrition and how does it affect health?

--What are the nutrition problems to be countered by NSLP?

--Can NSLP, through one-sixth of a student's annual meals and classroom instruction, produce a quantifiable improvement in some index of schoolchild health?

Chapters 2 through 4 focus on the above questions. Chapter 2 provides insights into the complex relationships between nutrition and health. Chapter 3 presents findings from three of the Nation's major nutrition surveys as a means of defining the schoolchild's nutrition problem(s) and determining the diet modifications needed to safeguard health. Chapter 4 describes previous attempts to evaluate NSLP's health impact and explain some of the factors that complicate such an evaluation.

CHAPTER 2

WHAT IS THE RELATIONSHIP BETWEEN NUTRITION AND HEALTH?

While it has been generally accepted that many Americans suffer from health problems which can be ameliorated through diet modification, it is important to recognize that our nutrition problems are not the same as those found in less developed nations. The modifications required to achieve optimum nutrition may be very different.

Primary malnutrition and lack of food pose serious health problems in many countries of the world. Since the diets of these peoples are insufficient to satisfy physiological needs and combat disease, higher intakes of the essential nutrients (vitamin C, protein, etc.) have often directly benefited health. In the United States, however, extreme undernutrition is rare and the classical deficiency diseases (e.g., scurvy, beriberi) are virtually nonexistent. Even so, many authorities consider nutrition (the lack, excess, or quality of it) a major public health problem.

Because the National School Lunch Program's design is based on the premise that nutritious lunches will safeguard children's health, and since different opinions exist as to the specific aspects of nutrition which have the greatest health impact, this chapter explores the following topics.

--What is good nutrition?

--What are the benefits of improved nutrition?

--What is the health threat?

WHAT IS GOOD NUTRITION?

Published in 1943, the first edition of *Recommended Dietary Allowances* provided standards for good nutrition. As knowledge has improved, the standards have been refined. In the Food and Nutrition Board's latest release, recommended dietary allowances (RDA) are described as the levels of intake of essential nutrients considered adequate for meeting the known nutritional needs of practically all healthy persons. 1/, 2/ These standards are used by nutritionists, physicians, dietitians, consumers, and NSLP, whose nutritional target for each meal is to approximate one-third of the RDA. Recognizing the RDA's merits, the Board also pointed out some limitations and difficulties in establishing universal nutrition standards. It explained:

--While a diet made up of ordinary foods meeting the RDA standard should maintain health, present knowledge of nutritional needs is incomplete. The requirements for many nutrients have not been set. Because of unrecognized needs RDA should be provided from as wide a selection of foods as practicable.

--RDA are established for healthy people and do not give any consideration to special needs because of infections, disease, metabolic disorders, or other factors requiring special diets.

--Nutritional requirements differ with age, sex, body size, physiological state, and genetic makeup.

--RDA's are estimates of acceptable daily nutrient intakes in the sense that although the needs of most individuals will be less than the RDA standard, there will be some who require more. For example, the Board believes that most nutrients can be tolerated well in advance of allowances by 2 or 3 times.

1/National Academy of Sciences, Food and Nutrition Board, National Research Council, *Recommended Dietary Allowances*, 8th Ed., Wash., D.C., 1974.

2/Essential RDA nutrients considered are calories; protein; vitamins A, D, E, B6, and B12; ascorbic acid (vitamin C); and folacin, niacin, riboflavin, thiamin, calcium, phosphorus, iodine, iron, magnesium, and zinc.

However, excessive intake of calories is undesirable, for it leads to obesity and excessive intakes of vitamins A and D, and certain trace elements can be toxic.

--Allowances are frequently estimated on limited information because experiments on humans are costly and often of long duration; certain types of experiments are not possible for ethical reasons; and only a small number of persons can usually be studied in a single experiment.

--There is not always agreement as to the criteria that should be used to establish requirements.

Although many authorities believe improved nutrition will greatly reduce medical expenses and will enable the general public to enjoy many health benefits, including longer, more active lives, it should also be noted that

> "In general, our approach to good nutrition has been to provide the recommended dietary allowance of nutrients for everyone and more recently to restrict excess caloric intake to reduce the risk for certain diseases. Even though this approach through public health measures and education has been extremely beneficial, it is inadequate in providing optimal nutrition for the individual." 1/

In contrast to a diet deficient in RDA nutrients, some authorities believe the major diet problems are those of overconsuming certain foods. They say the population is confronted with a whole new spectrum of diseases in which nutritional factors either are the prime cause or else are highly contributory to the development of a disease state. These diseases include:

--Heart and allied diseases, together with diabetes mellitus, in which high intakes of calories and cholesterol may be a contributing dietary factor.

1/U.S. Department of Health, Education, and Welfare (HEW), Public Health Service, Report of the President's Biomedical Research Panel: Appendix A, The Place of Biomedical Science in Medicine and the State of the Science, HEW Pub. (05) 76-501, Apr. 1976.

--Hypertension (high blood pressure), probably related to diets high in salt.

--Bowel cancer, apparently caused by fiberless diets.

--Obesity, caused by overeating and the lack of exercise.

--Liver disease, caused by excessive usage of alcohol.

--Tooth decay, caused by high intakes of sugar.

BENEFITS OF IMPROVED NUTRITION

A 1971 USDA report 1/ estimated potential savings from improved diets (e.g., reductions in absenteeism and medical and dental expenses) to be in excess of $12.1 billion annually. (See table 2.1.) It also estimated that improved diets would reduce the incidence of obesity, cancer, diabetes, and respiratory and infectious diseases by 80, 20, 50, and 20 percent, respectively. Many benefits, including improved work efficiency and learning ability, were not expressed in dollar savings.

Table 2.1

USDA Estimates of Annual Savings Through Improved Nutrition (note a)

Nutrition-related health problems	Magnitude of loss	Potential savings from improved diet
	----------(billions)	---------
Heart and vasculatory	$31.6	$ 6.3
Arthritis	3.6	.9
Dental health	6.5	3.2
Alcoholism	2.0	.7
Digestive	4.2	1.0
Total	$47.9	$12.1

a/The omission of many qualitative benefits causes a sizeable understatement of potential savings.

1/Weir, C. E., An Evaluation of Research in the United States on Human Nutrition, Report No. 2: Benefits from Human Nurtition Research, Agriculture Research Service, USDA, Aug. 1971.

Improved nutrition may already be providing health benefits. Dr. J. Stamler, Professor of Cardiology at Norhtwestern University, recently commented on the decline in death rates from heart disease of middle-aged men in the United States. [1] From 1968 to 1972, the coronary death rate dropped 8.7 percent for white men aged 35 to 64. Downward trends were also noted for black men and for all women in the same age group. These findings reflect a reversal of trends which had been increasing since 1940. Although the precise cause of this reversal is unknown, Dr. Stamler believes the major influences are a reduction in cigarette smoking, less incidence of high blood pressure, and improved eating habits; for example, less intake of saturated fats from animal sources and increased intake of polyunsaturated fats from vegetable sources.

WHAT IS THE HEALTH THREAT?

Some authorities believe that nutrition is a contributing factor for five diseases included in the 10 leading causes of death in the United States. (See table 2.2 on next page.)

Overconsumption recognized as health threat

The health threat from overconsuming certain foods (e.g., cardiovascular disease, obesity, tooth decay) is found at all income levels of American society. Many of these problems are easily recognized and preventable.

In 1972 the Food and Nutrition Board of the National Academy of Sciences and the Council on Foods and Nutrition of the American Medical Association issued a joint statement on

---

[1] "The Recent Decline in Death Rates from Premature Coronary Heart Disease in the United States," address before American Heart Association's Science Writers Forum, Jan. 1975.

Table 2.2

The 10 Leading Causes of Death, United States, 1974 (based on a 10-percent sample of deaths) (note a)

Rank and cause of death	Death rate per 100,000 population	Percent of total deaths
1. Diseases of heart (note b)	353.1	38.6
2. Malignant neoplasms, including neoplasms of lymphatic and hematopoietic tissues	169.5	18.5
3. Cerebrovascular diseases (note b)	97.2	10.6
4. Accidents	48.9	5.3
5. Influenza and pneumonia	25.7	2.8
6. Diabetes mellitus (note b)	17.4	1.9
7. Cirrhosis of the liver (note b)	16.0	1.8
8. Arteriosclerosis (note b)	15.2	1.7
9. Certain causes of mortality in early infancy	13.2	1.4
10. Suicide	12.5	1.4
All other causes	145.7	16.0
Total	914.4	100.0

a/Source: HEW, Monthly Vital Statistics Report, Provisional Statistics, Annual Summary for the United States, 1974; Vol. 23, No. 13, May 1975.

b/Some authorities believe that nutritional factors contribute to the onset or severity of this disease.

diet and coronary heart disease. 1/ The statement indicated that although investigations have identified a number of "risk factors," including some which can be modified by diet, not enough evidence exists to quantify the benefits that may come from modifying the individual factors of this set. There was, however, enough evidence to recommend that measurement of plasma lipids (such as cholesterol) be included as a routine part of physical examinations and that persons in a "risk category" receive appropriate dietary advice.

The White House Conference on Food, Nutrition, and Health indicated concern about excessive consumption of calories by schoolchildren. Their final report stated, "For obese children of age 12, the odds against being normal weight adults are 4 to 1 and if weight reduction does not occur by the end of adolescence, the odds rise to 28 to 1." 2/ To avoid cardiovascular problems, other reports suggest encouraging good nutrition and weight control beginning at birth. The first changes in the vascular system may occur by the age of 3, although coronary heart diseases may not be diagnosed until the fortieth year of life.

Deficiencies in RDA nutrition may also affect health

Many authorities believe RDA deficiencies, some of which can be combated by vitamin and mineral supplementation, have an important effect on health, development, and growth. But perhaps because extreme malnutrition is rare in America, it has been difficult to demonstrate the health impact of slight RDA deficiencies. Therefore, while it may be possible to correct RDA deficiencies and improve one's nutritional status, the precise health impact of an improvement in nutritional status has not been completely identified.

Some school food service directors have noted better mental performance by participants in the school lunch and breakfast programs, but the comparative results of these programs have not been documented in learning and behavior in school settings. As a result of limited studies, the

---

1/Food and Nutrition Board, National Academy of Sciences, National Research Council, Diet and Coronary Heart Disease, Wash., D.C., July 1972.

2/White House Conference on Food, Nutrition and Health, Final Report, Dec. 1969.

National Academy of Sciences found that investigations have not completely addressed the relative importance of malnutrition versus social-environmental factors on intellectual development. Both have been found to be significant. 1/ Despite serious methodological shortcomings in the studies that have been made (e.g., difficulties in isolating a portion of any observed changes to nutritional factors alone), the Academy noted that the evidence indicated that early and severe malnutrition is an important factor in later intellectual development and that it was above and beyond the effects of social-familial influences. The Academy was less certain about the effects that mild to moderate protein-calorie malnutrition, or chronic subnutrition, had on later intellectual development. As a case in point, anemia in the preschool years appears to adversely affect motivation and ability to concentrate for extended periods of time.

A 1968 USDA food consumption report noted that the per capita consumption of vitamin A and ascorbic acid decreased considerably between 1945 and 1966. In 1971, Dr. Murray of the Canadian Food and Drug Directorate amplified this finding. Going beyond the capabilities of food consumption reports and the biochemical evaluations of nutrition surveys (which measure serum vitamin A in the blood), Dr. Murray focused on the autopsy examination of livers. He found that (1) many people did not have any vitamin A in their livers at death and (2) an even greater number had very little vitamin A liver stores. These findings, which were subsequently confirmed for the United States population, led Dr. Murray to state:

> "Now, as far as I know, there is nothing decisive about liver stores of vitamin A. It has never been demonstrated that there is any direct immediate advantage to having a reserve of vitamin A, nor any direct immediate disadvantage in not having liver stores. It would be foolish, however, to be unconcerned at their absence in a substantial proportion of the population. It is difficult to believe that a diet which permits the dissipation of liver vitamin A will, in every case, be sufficient to maintain blood levels." 2/

1/Food and Nutrition Board, National Academy of Sciences, National Research Council, The Relationship of Nutrition to Brain Development and Behavior, Wash., D.C., June 1973.

2/"Vitamin A Nutriture in North America," Proceedings of the Western Hemisphere Nutrition Congress III--1971.

A general relationship between adult stature and socioeconomic status has often been reported. A New York study noted that infants of poor mothers were 15 percent smaller than other infants. The extent of permanent stunting due to early malnutrition depends on factors such as timing in respect to growth periods and the duration of malnutrition. Short stature has been associated with increased risks during childbirth.

IMPLICATIONS FOR NSLP

As a nutrition intervention program, NSLP seeks to prevent rather than to cure a disease state. Its health impact usually does not become apparent for a long time, and then only in comparison with what otherwise might have been.

It is difficult to measure the school lunch's effectiveness in terms of a discrete change in a participant's health. Many health effects do not become apparent for years, but short-term studies (e.g., spanning a school year) which compare the nutrition-health relationships between participants and nonparticipants may provide insights to the health impact of the program. (See ch. 4.) This applies to studies assessing both

- --health parameters responsive to short-term change (e.g., the designers of an NSLP evaluation should consider the feasibility of detecting the program's influence on features such as: the incidence and duration of illness, obesity, tooth decay, periodontal disease, etc.) and
- --nutritional status 1/ (which, while not a direct measurement of current health, is believed to have long-term health consequences).

The design of the NSLP lunch warrants special attention throughout this report. Although program regulations require each lunch to approximate one-third of the RDA, it should be remembered that the lunch is but a supplement to the home

---

1/Nutritional status is defined as the condition of an individual's health as influenced by intake and utilization of nutrients, determined from the correlation of information obtained from physical, biochemical and dietary studies.

diet. Its effectiveness should be considered in terms of how well it fulfills the actual diet needs of children.

Schoolchildren exhibit a variety of nutritional conditions (e.g., some are well nourished, some are underfed, and some fall short in RDA nutriture and/or overeat the wrong foods). A meal designed to reinforce the caloric (energy) intake of underfed children could, in addition to improving the nutriture of these children, have undesired side effects on the health of those who overeat or who are already well nourished (e.g., promote obesity).

CHAPTER 3

DEFINING THE SCHOOLCHILD'S NUTRITION PROBLEM

To examine how a National School Lunch Program meal can best supplement children's diets and to see if the free and reduced-price program is targeted to reach those in greatest need of nutritional assistance, we focused on two questions:

--What are the specific nutritional problems affecting schoolchildren (e.g., the types of problems, and the proportion of schoolchildren affected)?

--Can "nutritionally at risk" children be identified on the basis of visual or socioeconomic characteristics?

Although more research is needed to completely answer either question, many insights can be gained by comparing the findings of three surveys that evaluated nutritional status in large segments of the U.S. population. Pertinent findings--and their implications for NSLP--are presented in this chapter.

COMPLEXITIES OF MEASUREMENT

The purpose of a survey of nutritional status is to assess health as influenced by the intake and utilization of nutrients. Accordingly, its design may differ from that of a health survey (e.g., one which emphasizes a direct measurement of health by determining the presence of communicable diseases, cancer, etc.). A survey of nutritional status usually limits direct observations of health to features such as signs of the classical deficiency diseases, dental health, and anthropometric considerations. 1/ Its principal thrust is to obtain information about indirect health parameters such as iron nutriture.

Since there is little evidence of the classical deficiency diseases in the United States, the methods used in assessing nutritional status are based on the assumption that most of the malnutrition encountered will be early subclinical malnutrition with or without physical

---

1/The study of human body measurements on a comparative basis (e.g., head circumference, height, weight).

signs. These methods require extensive coordinated surveys to obtain dietary intake data, biochemical specimens, clinical examinations, and anthropometric measurements. Even with these provisions, the interpretation of nutritional status remains complicated. For example:

> "Standards of what constitutes good health and adequate nutritional status have not been precisely defined by medical and other scientific research. It is not definitely known, for example, how low a hemoglobin value can be without affecting health or growth and development. Similarly, the ideal growth rate for children, compatible with the longest useful and healthy life, has not been definitely determined." 1/
>
> "* * * to our knowledge there have been no definitive efforts to develop a system for 'rating' or 'scoring' the nutritional status of populations or individuals. We do not have available any substantive data which allow us to group dietary, clinical or biochemical data (weighted or unweighted) to signify the degree of subclinical malnutrition. Certainly, the presence of two or more 'unacceptable' biochemical indices in some segment of a population does not necessarily denote severity of malnutrition or even of a greater potential for malnutrition to develop at some future time." 2/

TEN-STATE NUTRITION SURVEY

The Ten-State Nutrition Survey (TSNS),3/ previously called the National Nutrition Survey, was the first comprehensive study ever developed for evaluating the nutritional

---

1/U.S. General Accounting Office,"Observations on Evaluation of the Special Supplemental Food Program"(B-176994), Wash., D.C., Dec. 1974.

2/Owen, G. M., Kram, D. M., Garry, P. J., Lowe, J. E., and Lubin, A. H., "A Study of the Nutritional Status of Preschool Children in the United States, 1968-1970," Pediatrics, Supplement to Vol. 53, No. 4, Apr. 1974.

3/U.S. Department of Health, Education, and Welfare, Health Services and Mental Health Administration, Ten-State Nutrition Survey, 1968-1970, HEW Publications (HSM) 72-8130 to 72-8134, Atlanta, Ga., 1972.

status of a large segment of the U.S. population. Supervised by the Department of Health, Education, and Welfare (HEW), the study gathered data during the period 1968-70 and was intended to determine the incidence and location of serious hunger and malnutrition in the United States. Severe time and cost constraints led to deficiencies in obtaining a representative sample of low-income households, a necessity for projecting sample findings into the overall U.S. population.[1] This shortcoming led us to conclude that

> "* * * the TSNS data should not be considered as reliable estimates of the prevalence of serious hunger and malnutrition in any of the survey populations, including members of low-income families. * * *"[2]

Although statistical shortcomings prevent TSNS from rendering precise estimates about the prevalence of schoolchild malnurition, the survey did provide useful information on the nutritional status of over 14,000 school-age children. By considering the dominant characteristics of the TSNS sample (e.g., persons suspected to be at high risk in the low-income areas of 10 States), looking at the differences of the children surveyed, and comparing TSNS's finding with related research, we found a number of points which we believe have an important impact on NSLP's effectiveness. These points can be summarized as follows.

1. In regard to identifying nutritionally needy children, TSNS reported:

   --Clinical examinations did not provide a useful means of identification.

   --Characteristics of malnutrition were often unique to the local situation and specific subsegments of the population (as social, cultural, and economic differences).

---

[1] Because of constraints of time and money, the study was limited to 10 States: Wash., Calif., Tex., La., S.C., Ky., W.Va., Mich., Mass., and N.Y. Within each State, TSNS surveyed families from the Census enumeration districts which had the lowest average income (lowest quartile) according to the 1960 Census.

[2] U.S. General Accounting Office,"Evaluation of Efforts to Determine Nutritional Health of the U.S. Population," Report B-164031(3), Wash., D.C., Nov. 1973, p. 19.

--Education attainment (years of school completed) of the person buying and preparing the family's food was related to the nutritional status of children under the age of 17.

--Evidence of malnutrition increased as income level decreased. Within each ethnic group, nutritional deficiencies were often more prevalent in the low-income-ratio States. 1/ (It should be kept in mind that TSNS was primarily a study of low-income families. The income-malnutrition relationships for higher income families will be described later in this chapter.)

2. In regard to identifying the nutrition problems affecting schoolchildren, TSNS reported:

--Adolescents between the ages of 10 and 16 showed the highest prevalence of unsatisfactory nutritional status.

--Iron, vitamin A, and riboflavin nutrition was a public health problem of medium-to-high importance among some groups. Protein, thiamin, vitamin C, and iodine nutriture was a low-to-minimal public health problem. (See table 3.1 on following page.)

--There was evidence that many persons made poor food choices that led to inadequate diets and to poor use of the money available for food. Families seldom used foods rich in vitamin A, placed heavy emphasis on meat rather than less expensive protein sources, and generally showed low levels of iron intake. As shown in table 3.2 on page 26 only 4 percent of the 12-14-year-old males in high-income-ratio States had protein intakes below 80 percent of the RDA; 87 percent consumed over 120 percent of the RDA for protein.

1/States classified as "low-income-ratio States" had more than half of the surveyed families living at a "below poverty" level; "high-income-ratio States" had more than half of the families living "above poverty."

--Weight data indicated an excess of both overweight and underweight children in all segments of the surveyed population. White male adolescents showed a higher prevalence of obesity than black males. (See figure 3.1 on p. 26.) These findings were consistent with the wide range of caloric intakes shown in dietary data.

--Increased levels of food consumption would have brought nutrient intakes closer to the RDA standards, but these increases might also have provided excessive intakes of calories in many segments of the population. Foods with better nutrient-to-calorie ratios were needed to increase intakes of iron, vitamin A, and riboflavin.

--Tooth decay was found to be closely associated with the intake of refined carbohydrates (foods with high quantities of sugar such as pastries, candies, soft drinks) and the amount that remains on the teeth. Black children in the low-income-ratio States and all groups of children in the high-income-ratio States showed a positive association between tooth decay and the between-meal consumption of high carbohydrate foods. (See the chart on page 27.)

Table 3.1

Relative Importance of Nutritional Problems--
Ten-State Nutrition Survey (1968-1970) (note a)

Ethnic group	White			Black			Spanish-American		
Age (years)	6-9	10-16	10-16	6-9	10-16	10-16	6-9	10-16	10-16
Sex	All	Female	Male	All	Female	Male	All	Female	Male
				Low-income-ratio States					
Iron b/	▲	▲	▲	☆	☆	☆	▲	▲	▲
Protein	—	—	—	○	○	—	—	○	—
Vitamin A	○	○	○	○	○	○	☆	☆	☆
Vitamin C	—	—	—	—	—	—	—	—	—
Riboflavin	○	○	○	▲	▲	▲	▲	▲	▲
Thiamin	—	○	○	—	○	○	—	—	—
Iodine	—	—	—	—	—	—	—	—	—
Growth & development	▲	○	○	☆	○	○	▲	○	○
Obesity	n/a	○	▲	n/a	○	○	n/a	n/a	n/a
				High-Income-Ratio States					
Iron	○	○	○	▲	▲	▲	▲	▲	▲
Protein	—	—	—	—	—	—	—	—	—
Vitamin A	○	○	○	○	○	○	—	—	—
Vitamin C	—	—	—	—	—	—	—	—	—
Riboflavin	—	—	—	○	○	○	—	—	—
Thiamine	—	—	—	—	○	○	—	—	—
Iodine	—	—	—	—	—	—	—	—	—
Growth & development	▲	○	○	▲	○	○	▲	○	○
Obesity	n/a	○	○	n/a	○	—	n/a	n/a	n/a

a/Source: Ten-State Nutrition Survey 1968-1970, DHEW Pub. (HSM) 72-8134

b/The symbols represent relative degrees of importance as public health problems as determined by evaluation of clinical, dietary, anthropometric, and biochemical data.

Legend:
☆ - high
▲ - medium
○ - low
— - minimal
n/a - not available

Table 3.2

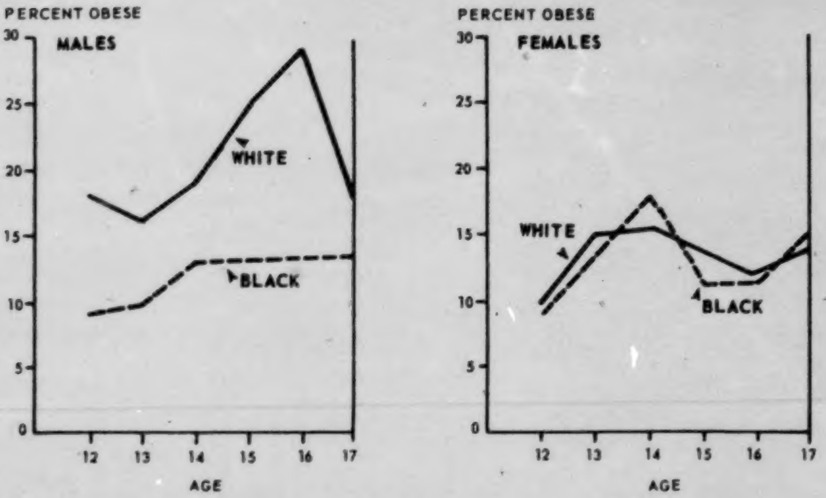
Distribution of Nutrient Intakes for Males (12-14 yrs.)-- TSNS (1968-1970) (note a)

	Intake groups					
	Low-income-ratio States			High-income-ratio States		
Nutrient	Intakes below 80% of RDA	RDA ± 20%	Intakes over 120% of RDA	Intakes below 80% of RDA	RDA ± 20%	Intakes over 120% of RDA
	(percentage distribution within States' group)					
Calories	61	23	16	37	35	28
Protein	12	17	71	4	9	87
Calcium	67	19	14	41	27	32
Iron	68	←32→		57	←43→	
Vitamin A	68	10	22	60	17	23
Thiamin	49	27	24	38	31	31
Riboflavin	29	28	43	15	20	65
Vitamin C	50	13	37	42	13	45

a/Based on eighth edition of Recommended Dietary Allowances. Actual levels of nutrient intake may be somewhat understated in this table. Although TSNS gathered limited data on the use of vitamin/mineral supplements; this data was neither integrated with overall levels of intake nor presented in the final report. Dietary intake data is based on 24-hour recall. Although the data reflect only the day of recall, the number of persons consuming intakes below the RDA standard suggests that many diets are apt to be inadequate over time. Source: Ten-State Nutrition Survey 1968-1970, DHEW Pub. (HSM) 72-8133.

FIGURE 3.1

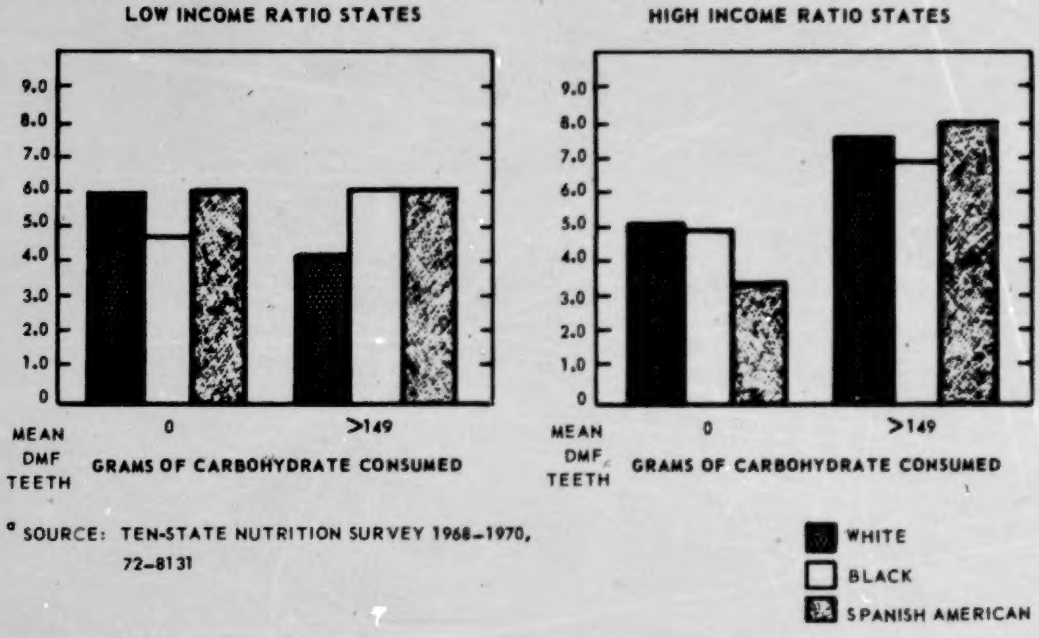
PERCENT OBESITY IN ADOLESCENTS – TSNS [a]



[a] SOURCE: TSNS 1968–1970, DHEW PUB. (HSM) 72–8131.

FIGURE 3.2

MEAN DECAYED, MISSING AND FILLED (DMF) PERMANENT TEETH FOR PERSONS TEN THROUGH SIXTEEN YEARS OF AGE BY GRAMS OF CARBOHYDRATE CONSUMED BETWEEN MEALS – TSNS [a]



[a] SOURCE: TEN-STATE NUTRITION SURVEY 1968–1970, 72–8131

Nutrient intakes increased by school lunch programs

In comparing the nutrient intakes of persons who did and those who did not eat the school lunch, TSNS indicated:1/

> "School lunch programs were found to be a very important part of nourishment for many children. Particularly in the low-income-ratio states, school lunches contributed a substantial proportion of the total nutrient intake of many school children. The contribution of school lunch to overall nutrition was particularly important among black children."

1/Based on the dietary recalls of 4,106 individuals between the ages of 10 and 16. Since many respondents did not know whether an existing school lunch program was USDA supported, the term "school lunch" has been used to describe any organized food service provided at the noon period except vending machine or concession service.

We believe that TSNS, supported by similar findings in other studies, provides a reasonable basis for assuming that NSLP participation increases the nutrient intakes of school children. 1/ (See table 3.3 below.) However, since average intake values conceal wide variations of nutrient intakes, and since TSNS did not compare the health and nutritional status of these children, we cannot be sure of the school lunch's net impact.

Table 3.3

Comparison of Mean Nutrient Intake of Persons (10 through 16 Years of Age
Participating in School Lunch Programs With Those Not Participating
TSNS (1968-1970) (note a)

	Nutrients								
	Calories	Protein (gm)	Calcium (mg)	Iron (mg)	Vitamin A (I.U.)	Thiamin (mg)	Riboflavin (mg)	Preformed Niacin (mg)	Vitamin C (mg)
				LOW-INCOME-RATIO STATES					
Nonschool lunch (519 children):									
Mean daily intake	1926	65.69	603	11.11	3496	1.21	1.59	13.15	57.46
School lunch (1093 children):									
Mean daily intake	2011	76.10	903	11.24	5232	1.18	1.99	13.88	58.71
Mean intake contributed by school lunch	699	28.35	420	3.73	1993	0.37	0.83	4.63	20.51
Percent of daily intake contributed by school lunch	34.75	37.25	46.51	33.18	38.09	31.35	41.70	33.35	34.93
				HIGH-INCOME-RATIO STATES					
Nonschool lunch (1339 children):									
Mean daily intake	2371	88.85	989	12.88	4429	1.37	2.02	16.47	71.94
School lunch (1155 children):									
Mean intake	2601	102.88	1285	13.91	5868	1.42	2.51	18.91	80.97
School lunch mean contribution	676	28.61	418	3.23	1348	0.31	0.72	4.39	17.16
Percent contributed by school lunch	25.99	27.80	32.52	23.22	22.97	21.83	28.68	23.21	21.19

a/Records reflect nutrient intake of 1 day prior to interview excluding weekends and nonschool session.
Source: Ten-State Nutrition Survey 1968-1970, DHEW Pub. (HSM) 72-8133.

1/In fiscal year 1970, nearly 74 percent of the schoolchildren in these 10 States were enrolled in NSLP schools.

To analyze how well the school lunch program satisfied the nutritional needs of children, we compared the average nutrient content of a lunch with the nutritional problems reported in the same study, as shown in table 3.1. We found the following:

--Mean intakes for all nutrients, except for thiamin in the low-income-ratio States, were greatest for persons who ate the school lunch.

--School lunches provided roughly one-half of the RDA for protein, calcium, riboflavin, and vitamin C; one-third of the RDA for vitamin A; one-fourth of the RDA for calories and thiamin; and one-fifth of the RDA for iron. 1/

--In regard to problem nutrients identified in table 3.1, school lunch programs provided a diet supplement which:

1. Effectively raised the mean intakes of vitamin A and riboflavin to RDA standards (e.g., 4000-5000 I.U. and 1.3-1.8 mg., respectively).
2. Used foods with iron-to-calorie ratios below those of the child's home diet and were relatively ineffective in raising mean iron intakes to RDA standards (18 mg.).
3. Increased mean calorie intakes, which probably benefited growth and development at the cost of increased obesity.

--The strength of nutritional reinforcement bore little resemblance to need. Protein supplementation, for example, a relatively expensive food source and one for which mean intakes were well in excess of the RDA standard, was greater than that provided for iron (raising questions as to how much consideration was given to need in the design of the school lunch).

1/Since the TSNS sample was not categorized by age and sex, a precise statement of RDA requirements is not possible. Our estimates are based on a uniform age-sex distribution.

PRESCHOOL NUTRITION SURVEY

The Preschool Nutrition Survey (PNS) 1/, 2/ was designed to provide an overview of descriptive data on the nutritional status of a cross-sectional sample of preschool children. This study was limited to a specific age group; it sampled from a broader geographic and income base than that used in TSNS.

The PNS designers reasoned that while an adequate income might provide the opportunity to eat well, it did not automatically insure a nutritious diet. For this reason, PNS used an index of socioeconomic status (SES) 3/ other than income to compare relationships between nutritional status and the overall lifestyle of a household.

In describing eating practices and food preparation in the household, PNS indicated:

--Poor families did not spare meat in children's diets. Despite differences in the money available for food, total consumption of meat and poultry varied little by SES.

--Mothers in higher SES groups indicated they enjoyed cooking, frequently tried new foods and used printed recipes. At lower SES levels, someone other than the mother assumed a greater share of the responsibilities for procurement and preparation of the family's food.

1/See footnote 2, p. 22.)

2/PNS was sponsored by the Maternal and Child Health Service, HEW.

3/Warner Index Status Characteristics was used, which is based on ratings of occupation, source of income, dwelling type and dwelling area. While per capita income and SES were generally related, inconsistencies occurred predominantly in the highest and lowest income groups. Where these inconsistencies were noted, dietary intakes and biochemical indices of children were generally more in keeping with SES than with income.

These families made less frequent use of cookbooks and tended to rely on neighbors and relatives for information about food.

- --Higher SES groups tended to have more established daily eating patterns, were less permissive in catering to children's food preferences, and showed less tendency to use food as a means of reward or punishment.
- --Relatively few children had nothing to eat in the morning, although with increasing age more children ostensibly prepared their own breakfasts at least some of the time.

Comparing the relationships between SES and children's diets, the study found that:

- --The percentage of children using vitamin/mineral supplements tended to increase as SES improved and to decrease with advancing age. Of 3,441 children surveyed, 1,731 took supplements. The majority of these children used multivitamin preparations; 486 took preparations containing iron; and only 15 used preparations containing calcium.
- --Although children in the lowest SES group consistently consumed less food than other children, there was little difference between SES groups with respect to average nutritive quality of diets (i.e., the nutrient-to-calorie relationships were about the same).
- --As SES increased, fruits contributed progressively more energy and nutrients; vegetables generally contributed less.
- --Cereal grains were a major source of iron and calories. As SES increased, the amount of energy contributed by breads, cereals, pastas, etc., declined; and energy derived from cakes, cookies, sweet rolls, etc., increased. The proportion of iron provided by cereals increased with SES and appeared to reflect the consumption of heavily iron-fortified breakfast cereals.
- --"People purchase and consume food to meet energy needs and when income is limited, there is less likelihood of buying foods such as fruits which are relatively

> expensive sources of energy, but happen to be good sources of ascorbic acid."

The nutritional quality of the diet for most nutrients, therefore, varied little by socioeconomic group. However, because evidence that "nutritional risk" (i.e., lower dietary intakes, lower biochemical indices, and smaller physical size for age) was clustered among preschool children of lower SES, PNS concluded that:

> "Having examined dietary, clinical, anthropometric and biochemical data in some detail, * * * the major nutritional problem confronting those children 'nutriionally at risk' was insufficiency of food."

HEALTH AND NUTRITION EXAMINATION SURVEY

In 1969, while the earlier studies were being performed, the Secretary of HEW established a National Nutrition Surveillance System. That system--the Health and Nutrition Examination Survey (HANES)--was intended to examine, in continuing 3-year cycles, a sample of the civilian, noninstitutional population between the ages of 1 and 74 who reside in the contiguous 48 States.

The HANES sample design, which was developed jointly by the Bureau of Census and the National Center for Health Statistics, established explicit quality control requirements so that sample results would be capable of providing reliable estimates of nutritional status in the United States. At the same time, probabilistic design features were included to permit more detailed analysis of data for certain high-risk groups--namely, the poor, preschool children, women of childbearing ages, and the elderly. The first examination cycle, which used nutritional assessment methods nearly identical to those employed in TSNS, examined about 20,000 Americans from 1970 to 1974. The second examination cycle is scheduled to begin in the first half of 1976.

While it has been reported that clinicians in the United States are occasionally confronted with cases of overt malnutrition, the first HANES cycle did not find any evidence of such deficiencies in the surveyed population. 1/ It therefore

---

1/Habicht, J. P., The Nutrition Effect of the Food Stamp Program, Presentation for Food and Nutrition Service, USDA Executive Retreat, Feb. 1975.

appears that severe malnutrition does occur, but is sufficiently rare as to avoid detection in HANES.

A comprehensive analysis of this data is not yet available; however, HEW published a preliminary report in 1974 which was based on a representative subset of the total sample.[1] That subsample was more closely representative of the civilian noninstitutionalized population of the United States than any previous survey of nutritional status.

The HANES preliminary report compared the mean intakes of selected nutrients by age, sex, race, and income groups. Major findings included (see table 3.4 on following page):

--White persons in the income group above poverty level had the highest caloric intakes, while blacks in the lower income group had the lowest intakes. Substantial numbers of individuals had low caloric intakes. (A more meaningful analysis of the prevalence of under- and overweight children should be presented in the survey's final reports.)

--Mean protein intakes for all population subgroups exceeded dietary standards. Although white persons had the highest overall intakes, mean protein intakes per 1,000 calories showed little or no variation by race or income (e.g., protein consumption was closely related to caloric intake).

--In all age groups and at both income levels, the mean calcium values were consistently higher for whites than blacks. However, since mean calcium intakes per 1,000 calories were essentially the same in all subgroups, the differences in calcium values were primarily due to higher caloric intakes.

--Mean vitamin C intakes were adequate in all population subgroups. Vitamin C intakes per 1,000 calories were higher for blacks than for whites, indicating that differences in vitamin C intakes between these groups were more related to food choice than to total food consumed.

---

[1] HEW, National Center for Health Statistics, Preliminary Findings of the First Health and Nutrition Examination Survey, United States, 1971-1972: Dietary Intake and Biochemical Findings, DHEW Pub. (HRA) 74-1219-1, Rockville, Md., Jan. 1974.

--Mean vitamin A intakes were lowest in adolescents. Variations in intake levels between subgroups were related to choice of nutrient consumed rather than total caloric intake.

--Iron intakes were below standard for adolescents and for black children aged 6-11 in the lower income group. Mean iron intakes per 1,000 calories were higher for blacks in most age groups than for white persons regardless of income.

Table 3.4

Estimated Mean Nutrient Intakes as a Percent of RDA for 6-11 and 12-17-Year-Olds: United States, 1971-72 (HANES Preliminary) (note a)

Nutrient (note b)	Income below poverty level		Income above poverty level	
	White	Black	White	Black
	----------(intakes as a percent of RDA)---------			
		6-11-year-olds		
Calories	88	72	91	83
Protein	211	171	215	197
Calcium	116	87	133	95
Iron	99	79	92	95
Vitamin A	130	114	121	112
Vitamin C	144	162	195	182
		12-17-year-olds		
Calories	81	73	94	84
Protein	169	146	196	159
Calcium	87	57	98	66
Iron	63	66	71	64
Vitamin A	77	84	99	67
Vitamin C	158	164	177	165

a/Intake standards are based on the eighth edition of Recommended Dietary Allowances and a uniform age-sex distribution within the 6-11 and 12-17 age groups. Since RDA standards vary by age and sex and since these characteristics have not been reported for the HANES sample, values shown in this table are subject to sizeable error. They should be used only as an order of magnitude estimate in determining the adequacy of nutrient intakes. Source: Preliminary Findings of the First Health and Nutrition Examination Survey, DHEW Pub. (HRA) 74-1219-1.

b/Dietary intake data does not include the effects of vitamin/mineral supplements.

HANES found that 22 percent of the subsample took vitamin/mineral supplements on a regular basis and that another 10 percent took supplements irregularly. But, like the TSNS, its dietary recall process was limited to asking whether or not a vitamin or mineral supplement was used. As a result, the nutrient values added by supplements were not included in dietary intake values and, for the preliminary analysis, the sample's size precluded evaluation of how vitamin/mineral supplements affected dietary and biochemical findings.

The HANES study also analyzed biochemical indices for 6-11 and 12-17-year-olds. Biochemical values classified as "low" were used to identify groups of people who were more likely to be "at risk" of developing deficiency diseases. Data collected by race, age, and income group indicated the following (see table 3.5 on the following page):

--There was evidence of iron deficiency with anemia as measured by the number of children with low hemoglobin, hematocrit, serum iron, and transferrin saturation levels.

--In the 12-17-year age group, the percent of low values for hemoglobin and hematocrit was 3 to 6 times higher in blacks than in whites and did not appear to be associated with income. Similar differences were observed for serum iron and transferrin saturation, though with a lower magnitude.

--A high proportion of low transferrin saturation values (a measure of iron stores) was found in all population subgroups. For the 6-11 age group, low values were most prevalent among white children. In adolescents, however, the proportion of low values was greatest among blacks.

--No low serum albumin values were observed in children aged 6-17.

--Although white children had a greater percentage of low serum protein values than black children, there was no clear-cut evidence of nutritional protein deficiency.

--Low serum vitamin A levels were noted mostly among white low-income children between the ages of 6 and 11. Vitamin A deficiencies, as measured by mean serum vitamin A levels, were found to decrease with age in all race and income groups.

Table 3.5

Low Biochemical Indices for 6-11 and 12-17-Year-Olds: United States, 1971-72 (HANES Preliminary) (note a)

Biochemical test (note c)	Income below poverty level (note b)		Income above poverty level (note b)		
	white	black	white	black	Total
	---(percent of low values by population group)---				
			6-11-year-olds		
Hemoglobin	0.96	7.06	1.55	7.58	2.59
Hematocrit	2.21	3.81	2.65	8.08	3.08
Serum iron	3.69	1.95	2.24	2.73	2.37
Transferrin saturation	17.66	8.89	11.06	9.99	11.63
Serum protein	1.08	0.00	4.73	1.57	(d)
Serum albumin	0.00	0.00	0.00	0.00	0.00
Serum vitamin A	2.94	1.49	0.25	0.69	0.73
			12-17-year-olds		
Hemoglobin	3.67	20.40	2.51	15.02	4.68
Hematocrit	6.82	27.79	6.71	18.56	9.01
Serum iron	1.94	6.04	1.61	3.41	1.97
Transferrin saturation	6.78	12.54	6.33	7.39	6.49
Serum protein	1.56	0.00	3.23	0.19	2.69
Serum albumin	0.00	0.00	0.00	0.00	0.00
Serum vitamin A	0.00	0.00	0.22	0.21	0.17

a/Source: Preliminary Findings of the First Health and Nutrition Examination Survey, DHEW Pub. (HRA) 74-1219-1.

b/Excludes persons with unknown incomes.

c/Low biochemical indexes indicate the prevalence of groups who are more likely to be at risk of developing deficiency diseases. Hemoglobin and hematocrit are used to measure iron deficiency anemia. Both measurements are general rather than specific indicators of the cause of anemia and there is a close relationship between the two. Serum iron and transferrin saturation measurements give some indication of the amount of iron present in the blood. Serum protein and albumin are both affected by the level of protein intake in the diet and therefore may be low if there is a protein deficiency. They may, however, also be influenced by various diseases not directly related to nutrition. Serum vitamin A is a measure of vitamin A deficiency.

d/Not available.

The study also provided rough estimates of the number of children experiencing low biochemical values. (See table 3.6 below.) It is interesting to note that although the poor generally experience a high prevalence of low biochemical values, the actual number of children with low values is considerably higher in the "above poverty" group.

Table 3.6

Estimated Number of 6-17-Year-Olds
with Low Biochemical Indices:
United States, 1971-72 (HANES Preliminary) (note a)

	Income below poverty level (note b)	Income above poverty level (note b)	Total
	(thousands)		
Hemoglobin	582	1,086	1,801
Hematocrit	745	2,129	2,995
Serum iron	296	771	1,076
Transferrin saturation	1,100	3,298	4,494
Serum protein	68	1,437	(c)
Serum albumin	-	-	-
Serum vitamin A	128	98	223
Estimated population	8,920	38,389	49,582

a/Source: Preliminary Findings of the First Health and Nutrition Examination Survey, DHEW Pub. (HRA) 74-1219-1.

b/Excludes persons with unknown income.

c/Not available.

IMPLICATIONS FOR NSLP

By bringing together what we believe to be the most important studies into the health and nutritional status of the Nation's schoolchildren, this chapter provides an important foundation for considering how NSLP can best achieve its nutritional objectives. It is important, however, to note that these studies focused on nutriture, rather than diet. The nonnutrient part of diet (e.g., salt, fibre, saturated fat, etc.) has an important role in safeguarding health, but has received minimal attention in large-scale nutrition surveys.

We believe the implications of the three studies--TSNS, PNS, and HANES--as they affect NSLP, can be summarized as follows:

1. Income-poverty guidelines, as presently used in the free lunch program, represent the best known means of selectively targeting NSLP to reach those children in greatest need of nutritional assistance. At present, income criteria provide the best available means for targeting NSLP to reach the group of schoolchildren having the highest prevalence of nutritional deficiencies (children from low-income families). Nevertheless, it should also be noted that there are probably several times as many nutritionally needy children among the higher income groups--groups for which "targetable" characteristics of nutritional need have not yet been established.

2. School lunch programs increase the nutrient intakes of participants. TSNS, supported by related research, provides evidence that NSLP is effective in increasing both the nutrient intakes and the quantity of food consumed by participants. This finding suggests that the program is a very important part of nourishment for needy children. It also cautions that the increased levels of caloric intakes can cause undesired side effects (obesity).

3. Modifications to NSLP's nutritional standards may improve program effectiveness. Revisions to NSLP's nutritional standards of one-third RDA would enable program lunches to better supplement the schoolchild's home diet.

--Each survey indicated sizeable numbers of both underweight and overweight children. If the program is to meet the needs of underfed children without providing excessive caloric intakes in other segments of the population (e.g., increasing the risk of obesity), program policies should permit the selective reinforcement of caloric intakes as appropriate to the individual child's needs.

--Iron deficiency or iron deficiency with anemia was a problem in all populations surveyed. In many instances, the deficits in mean iron intakes were greater than one-third RDA. However, since intake levels for most vitamins and minerals can be tolerated well in advance of the RDA, across-the-board increases in iron supplementation do not pose a threat such as that associated with calories. If NSLP is to make up the deficit between RDA standards and the home diet, reinforcement levels greater than one-third RDA are needed for nutrient iron as well as other vitamins/minerals for which major deficiencies have been found in some segments of the population. Such reinforcement, however, would have to be carefully planned to safeguard against some children receiving excessive supplementation of those nutrients which, in excess, are toxic.

--All surveyed populations had mean protein intakes well in excess of RDA standards. In this regard, it appears that NSLP's nutritional standards place undue emphasis on protein, usually the most expensive component of the NSLP lunch.

CHAPTER 4

THE SCHOOL LUNCH PROGRAM'S NUTRITIONAL IMPACT

Since 1946 National School Lunch Program legislation has expressed congressional intent to "safeguard the health and well-being of the Nation's children." Effective implementation of this policy requires the administering agency--USDA--to establish a sequence of derivative program objectives and to define the means for their accomplishment. In developing these program objectives, USDA has an implicit requirement to

--understand the schoolchild's nutrition problems,
--identify target groups with special needs,
--establish priorities, and
--develop standards for program evaluation.

Unfortunately, NSLP's effectiveness in satisfying legislative goals remains unresolved.

NUTRITIONAL IMPACT UNDETERMINED

In 1973 the Congress enacted Public Law 93-150, seeking, among other things, information on NSLP's nutritional effectiveness. Section 10 of the law directed the Secretary of Agriculture to carry out a comprehensive study to determine if the benefits of NSLP were:

> "* * * accruing to the maximum extent possible to all of the nation's school children, including a study to determine if those most in need are receiving free lunches * * *."

USDA's "Comprehensive Study of the Child Nutrition Programs" 1/ was delivered to the Congress in July 1974. Due to the short deadline provided in law, USDA's study relied on existing literature that demonstrated the importance of nutrition on child development as well as on reports relating to the school feeding programs. The study noted that comparatively few carefully designed surveys have been undertaken to evaluate the effects of these programs on the nutritional

---

1/USDA, Comprehensive Study of the Child Nutrition Programs, Committee Print of the Committee on Agriculture and Forestry, U.S. Senate, Wash., D.C., Sept. 1974.

status of participating children and that

> "* * * it is doubtful that a study can be expected to measure quantitatively the impacts of a specific food program on the basis of nutritional status of children who receive only one-sixth of their annual meals from the program."

Nonetheless, USDA judged the child nutrition programs as being extremely effective.

We believe the USDA study was a worthwhile undertaking which synthesized in a meaningful way various isolated, yet related, facts and information about the school feeding programs. However, even though personal and anecdotal evidence supports the nutritional benefits accuring to NSLP participants, documented studies are inconclusive. The lack of a substantive program evaluation precludes an objective appraisal of what the program accomplishes, how these accomplishments compare with intended objectives, and how effectively program resources are managed.

Existing studies

Several studies have investigated the nutritional impact of school feeding programs. While most of these studies have made a valuable contribution to existing knowledge, their findings about NSLP's nutritional impact tend to be inconclusive. For example:

- --The Ten-State Nutrition Survey's dietary intake evaluations (see ch. 3) generally found that children participating in school lunch programs had higher nutrient intakes and consumed greater quantities of food than those not participating. These findings lend merit to assuming beneficial program effects on nutritionally deprived children. They also indicate a potential for promoting obesity. However, since no attempt was made to test for differences in the nutritional status of participants and nonparticipants, the study did not provide direct evidence of the program's net impact on the health or nutritional status of participating children.

- --A 1970 study employed three nutritional indices--height, weight, and hematocrit--to evaluate the school lunch program in four schools located in Baltimore's lowest economic strata. 1/ Children were followed throughout the school year to determine whether there was any benefit to the participants as opposed to similarly matched children who did not participate. The study concluded that "* * * nutritionally disadvantaged children participating in an institutional school feeding program fared no better than those comparably matched children who were not participating in the organized school feeding program." The authors attributed this lack of success to several factors, including high rates of absenteeism, incomplete consumption of lunch, poor nutritional reinforcement at home, and a variety of educational and economic determinants. They suggested that NSLP's nutritional standards (i.e., one-third RDA) ignore these requirements and that higher levels of nutritional reinforcement will result in a greater physiological impact on nutritionally deprived children. It is important to recognize, however, that the study focused on whether or not the NSLP lunch upgraded the status of nutritionally disadvantaged schoolchildren. Its conclusions may not be representative of the program's impact on children who regularly consume most of the NSLP lunch or, for that matter, on the overall schoolchild population. Nonetheless, the study's suggestion of a need to increase the program's nutritional standards merits serious consideration. This suggestion is strengthened by the results of a later study 2/ which found that a nutritionally enriched supplement in addition to the NSLP lunch provided major improvements in the status of nutritionally deprived children and may have been associated with a lower rate of absenteeism among supplemented youngsters.

--A study at Cornell University measured the impact of the school lunch on the nutritive intake, biochemical indices, and physical growth of elementary school

---

1/Paige, D. M., "The School Feeding Program: An Underachiever," Journal of School Health, 42:392-395, 1972.

2/Paige, D. M., Cordano, A. and S. Huang, Nutritional Supplementation of Disadvantaged Elementary School Children, Presentation for the 101st Annual Convention of the American Public Health Association, Nov. 1973.

children during the 1970-71 school year. 1/ Children were divided into three groups--nutritionally needy, intermediate, and nutritionally adequate--and examined in the fall and the spring. Of the children eligible for the free lunch program, twice as many were judged nutritionally needy as were considered nutritionally adequate. In the group of higher economic status, these proportions were about equal. Few biochemical measurements were made, causing the research team to rely almost exclusively upon dietary recall comparisons with the RDA to evaluate nutritional status. Diets of nutritionally adequate children showed little change over the school year, except for vitamin A, which was considerably lower in the spring. Conversely, nutritionally needy children had larger supplies of all nutrients in the spring than in the fall. The bulk of this increase was supplied by home feeding (15 to 26 percent came from school lunches). Students were classified by nutritional status in the fall and again in the spring, as shown in table 4.1. The authors noted that fewer children were classified as nutritionally needy in the spring. They also reported that many children classified as nutritionally adequate in the fall "had become overweight and, therefore, no longer met all of the criteria for nutritional adequacy." 2/ We believe the reclassifications toward "intermediate" nutrition levels introduce a question as to how well the present NSLP lunch complements the home diet. It should be noted, however, that dietary recall provides a comparatively weak basis for judging an individual's nutritional status. Seasonal variations in dietary

---

1/Emmons, L., Hayes, M., and Call, D., "A Study of School Feeding Programs," Journal of The American Dietetic Association, Vol. 61, Sept. 1972, pp. 262-275.

2/Identical procedures were used in the Cornell study to assess changes of nutritional status in children that participated in both school lunch and school breakfast programs. Compared with the lunch alone, the combination of programs had a greater impact on nutritionally needy children. The proportion of children classified as nutritionally needy declined from 30.3 percent in the fall to 10.4 percent in the spring. The proportion of nutritionally adequate children also declined (28.2 to 16.4 percent).

intakes and the absence of a control group further handicap attempts to assess the significance of this report's findings.

Table 4.1

Changes in Classification of Children from Fall to Spring--Cornell Study

Category	Children in category Fall	 Spring
Nutritionally needy	25.9%	22.5%
Intermediate	49.8	64.5
Nutritionally adequate	24.3	13.0
Total	100.0%	100.0%

--A Harvard study used 12-to-18-year-olds in a large boarding school to evaluate the feasibility of modifying blood cholesterol levels in adolescent children. 1/ The study demonstrated that an association between diet and blood cholesterol exists in males as early as the second decade of life and that serum cholesterol can be lowered by means of a modified diet. The study concentrated on comparatively simple dietary changes such as using low-fat milk with extra skim milk solids, replacing butter with a highly polyunsaturated margarine, and using polyunsaturated oils and shortenings in baked goods and for frying. While the study achieved a 15-percent reduction in serum cholesterol, the author cautions that these features might not be available to schools which rely heavily on convenience and commercially prepared foods. Although this study was not directly associated with the school lunch, we believe it demonstrated that dietary factors in addition to nutrients can be used in an evaluation of child-feeding programs. Considering the importance of the nonnutrient part of diet on individual health, we believe that future evaluations of NSLP should include the program's impact on the total diet, rather than simply those aspects of diet related to nutrients.

1/Ford, C., et al., "An Institutional Approach to the Dietary Regulation of Blood Cholesterol in Adolescent Males," Preventive Medicine, 1:3:426-445, 1972.

Although USDA's report raised an important question as to whether or not NSLP's nutritional impact can be evaluated, the studies cited above appear to indicate that it can. 1/ In addition, the studies provide some basis for concluding that

--the NSLP lunch, if properly designed, should provide a recognizable improvement in the nutritional status of schoolchildren (an implication of the Baltimore study's success in combining the NSLP lunch with a low-lactose supplement); and

--it may be possible for NSLP to safeguard health through techniques in addition to RDA supplementation (an implication of the Harvard study's success in modifying serum cholesterol levels in adolescent children).

On the other hand, the Cornell study reported an increased incidence of obesity among NSLP participants. This indicates a need for an evaluation not only of the program's ability to increase nutrient intakes, but also of the extent and nature of its possible side effects.

- - - -

In commenting on our report (see app. III), HEW stated:

> "The report criticizes the regular Type A school lunch because it contributes to obesity in some children and has not been able to improve iron nutriture. Since the report elsewhere concluded that present studies of NSLP are inadequate to evaluate nutritional impact, it is premature to implicate the program on these grounds. This is particularly true since, as the report points out elsewhere, the school lunch provides only one-sixth of the meals of the participants and can, therefore, only be a supplement to home meals."

1/In commenting on this report (see app. I), USDA stated: "The program is designed to provide a maximum of five meals per week. Assuming that an average of 1/3 RDA is provided through the lunch over the five day period this would be only 20% of the child's total nutritional requirements for that period. * * * Because of the relatively small proportion of the total nutritional requirements the NSLP is expected to provide and the complexities associated with determining nutritional status, it is questionable that [an evaluation] would be successful in accomplishing its objectives."

We wish to give special emphasis to the fact that our report states a need for further evaluation of NSLP's health impact. It does not provide scientific evidence that NSLP as a whole fails to improve iron nutriture, or that it promotes obesity. On the other hand, it does bring together evidence that (1) obesity and iron deficiencies constitute a nutritional problem among schoolchildren, (2) the NSLP lunch increases food consumption without distinguishing between the needs of underfed and overweight children, and (3) where studied, the NSLP lunch has been found to provide less than one-third of a schoolchild's RDA for iron.

Most of the studies which have attempted to evaluate NSLP's health impact focused on its ability to improve iron nutriture. Aside from being inconclusive, not one of the studies showed any indication of improving iron nutriture. On the other hand, such studies have found indications of an increased prevalence of obesity among NSLP participants. These findings, while not necessarily representative of NSLP as a whole, are a cause for concern and justify further evaluations of the program's health impact.

Evaluation is possible

Dr. George Graham, Professor of International Health at Johns Hopkins University, believes that evaluating NSLP's nutritional impact is difficult, but that it is possible. Dr. Graham emphasizes the need to examine carefully the total nutrient intake--in the home and at school--together with anthropometric and biochemical indices as used for the Ten-State Nutrition Survey. Since some schools are still joining the program, he suggests this approach could be tried on students before entering the program and then repeated one year after joining. Further, he states:

> "The subject of controls is of course extremely important. If one documented the existence of significant undernutrition in a school population, if one proved that their total nutrient intake improved with participation, and if one demonstrated significant improvement in nutritional status, then one might be able to suggest that the participation did improve the nutritional status. For absolute proof, however, it would be necessary to have a control group of similar nutritional status who did not participate in the program."

Dr. Graham's comments are echoed by other experts. They agree that such an evaluation is feasible and that, giving adequate consideration to design complexities, approximately 1 year would be required to formulate an appropriate evaluation design. When asked if such an evaluation could assess the impact of school lunch participaton on longer term health benefits--useful life expectancy, lifetime earnings, medical expenses, etc.--expert opinion was divided. Especially noteworthy, however, is the concern by experts about adverse program effects:

> "I doubt very much there is a positive effect of the school lunch on any of these parameters, as there is compelling evidence to suggest that moderate undernutrition [low calorie intake relating to weight] will prolong useful life expectancy and there is the real danger that these programs are continuing to promote the overnutrition which is this country's greatest health and nutrition problem." 1/

> "* * * evaluation could be designed to capture short and long term aspects. Short term benefits could, in some situations, be less important relative to their long term implications. For example, provision of calories which may be important for some may have some long-term negative implications insofar as obesity is concerned. In some situations where participants are only thinking of satisfying their hunger and need more energy sources the supply of calories may be important, but to other participants this could have an adverse effect." 2/

> "* * * the class A school lunch includes a slab of butter and a cup of whole milk. Neither of these are essential ingredients of a balanced diet. * * * there is considerable evidence that the excessive ingestion of saturated fats and cholesterol may predispose certain individuals to premature cardiovascular disease. In addition, autopsy studies have shown that many healthy American males already have moderate coronary disease at a very early

---

1/Letter of Dr. G. G. Graham, M.D., School of Hygiene and Public Health, The Johns Hopkins University, Oct. 1974.

2/Conversation with Dr. G. M. Owen, Department of Pediatrics, University of New Mexico, Feb. 1975.

age. In the light of this evidence, perhaps the class A school lunch should be examined more thoroughly." 1/

NEED TO UPGRADE NUTRITION EDUCATION

Many of the Nation's leading experts are suggesting that greater emphasis be placed on the subject of nutrition education. Dr. Graham, commenting on USDA's report, states:

> "The whole section on nutriton education* * * is based on the assumption that the typical American diet is ideal and desirable, when all the overwhelming evidence points to its disastrous effect on our health. Some of the present food fadism of young people in particular is assumed to be all wrong. Much of it may be very right. Although they made many mistakes, many of these young people are turning against the gluttony of their parents and many of their own contemporaries. They deserve being listened to and perhaps guided, where they are making mistakes. Many of them have read the modern scientific nutrition literature much more carefully than many of the nutrition "professionals" who are trying to impose traditional patterns on the younger generation."

Nutrition education receives comparatively low priority. In view of the fact that presumably "normal" American dietary practices may predispose a relatively large percentage of our population to premature cardiovascular disease and possibly other acute and chronic debilities (see ch. 2), it may be desirable to shift the emphasis on nutrition education from conceiving it as a passive, abstract discipline to a viable, active part of preventive health. We believe nutrition education needs to deal with current food trends. It needs to identify food as more than a mere composite of RDA nutrients. Improved nutrition education involves disseminating appropriate knowledge on extenders, saturated fats, fibers, preservatives, and other food constituents present in today's market.

Associating diet practices with day-to-day health is felt to be more relevant for schoolchildren, who, made

---

1/Statement of Dr. S. Schultz, University of Pittsburgh School of Medicine, before the Senate Select Committee on Nutrition and Human Needs, May 1973.

aware of health problems in their environment, may see direct application of nutrition instruction in their daily lives.

The emphasis given nutrition education varies among State and local governments. Comprehensive legislation which allows for teaching nutrition education in the Nation's schools is presently lacking; the program is therefore highly dependent on the attitudes of State and local authorities. Describing the extent to which the program is misunderstood at these levels, Mr. C. F. Olsen, Director of NSLP in Idaho, stated:

> "I've always said that if a school lunch program is doing nothing more than a gastronomical filling station, then it has no need for existence. And as I made that observation in education meetings, some of the superintendents kind of crossed their eyes a little and said, 'Really what else do we do, that's what we have it for. It's there to feed them.' It's not there just to feed them. It shouldn't be. It should be an integral part of the school and every part of that program can be implemented into some phases of the curriculum* * *." 1/

NEED FOR FURTHER EVALUATION

The problems of health and nutrition differ among schoolchildren. Some children are well nourished, some overeat the wrong foods, and others are underfed. While it may be that the NSLP lunch is a valuable source of nutritious food for needy children, there is an inherent danger that this same meal promotes overeating in other children. In fact, it would be naive not to expect some adverse side effects in any large-scale feeding program which stresses a standardized menu pattern and portion sizes. Because of these considerations, the question of whether NSLP safeguards health requires more than a simple "yes" or "no" answer. It requires a comparison of both beneficial and adverse health influences.

At present the Nation lacks an adequate evaluation of NSLP's impact on schoolchild health. There is little objective evidence on which to undertake either a strengthening of the program's health impact or the elimination of

---

1/USDA, FNS, Proceedings of the National School Food Service Conference, June 27-29, 1972.

undesired side effects. Similarly, legislative bodies have little substantive evidence on which to compare the program's resource requirements against anticipated health benefits--a disadvantage in allocating scarce budget resources among competing needs.

These considerations, and a lack of objective evidence on NSLP's nutritional impact, indicate a need for further program evaluations. However, these needs should be balanced against the cost of the evaluation, which would not be known until after the preliminary design has been approved. Such an evaluation may require about 4 years: 1 year for developing the survey design, 2 for data collection in the field, and 1 for analyzing findings. We believe a multidisciplinary team offers the greatest potential for compressing time-cost-scale factors, for providing assured reliability of findings, and for introducing scientific objectivity. The effort could be authorized in two phases: the first would establish a survey design, while the second would involve field data collection and analysis, which would begin only after approval of a satisfactory design.

Some considerations which we believe are important to the design are:

--An evaluation of NSLP--even though providing useful information to gauge the program's performance--can only serve as an objective impetus for improvement if its information can be used by managers.

--Since measures of nutritional status include only a portion of the diet variables that influence health, an evaluation of NSLP's health impact should, when feasible, incorporate additional means of appraising program performance (e.g., its ability to reduce the incidence and duration of illness, hypertension, tooth decay, elevated blood cholesterol levels, etc.).

--The evaluation process should focus on selected diet-related health variables which are considered to be the most strategic to NSLP goals, either in the sense that they have the greatest impact on individual health or that they, better than any others, show whether NSLP is safeguarding the overall level of schoolchild health as expected.

--Even though the evaluation process may be constrained to a comparatively small sample of children, there's an implicit requirement for evaluation results to be expressed in terms of their impact on the overall NSLP population. To facilitate this requirement, a sample stratified by some index of health and/or nutritional status may provide better statistical estimates than one which groups children by socioeconomic characteristics.

Authorization to begin the second phase--field data collection and analysis--should be predicated on the review and approval of a satisfactory design.

RECOMMENDATION TO THE SECRETARY OF AGRICULTURE

As a means of resolving existing uncertainties and improving program effectiveness, the Secretary of Agriculture should require a formal, systematic evaluation of NSLP's performance in meeting legislative objectives. The evaluation should be coordinated to utilize the expertise and resources of HEW in all matters pertaining to the health and nutritional status of schoolchildren; and to provide effective and timely reporting of information needed for congressional oversight.

AGENCY COMMENT AND OUR EVALUATION

HEW advised us by letter dated April 14, 1977 (see app. III), that it was willing to assist USDA in carrying out the intent of our recommendation.

USDA, in a letter dated April 20, 1977 (see app. I), told us that it recognized the need for a comprehensive evaluation of NSLP's effectiveness in meeting legislative objectives. USDA stated that an evaluation plan projecting FNS's research plans over the next 5 years has been drafted and is currently under review. It said that the plan calls for developing a methodology for assessing NSLP's nutritional impact but that, since the plan was under review and subject to change, it was not presently available for our review.

Since we have not reviewed USDA's plan, we have no means of assessing whether or not it will provide for an effective program evaluation. We note, however, that USDA's comments do not make any reference to the considerations that we believe are important to the design of such an evaluation or to the recommended coordination with HEW.

USDA also stated, "It has never been the philosophy of the Department that the basis for the NSLP is to serve as a nutrition intervention program to prevent a state of disease"; it added:

> "Because of the relatively small proportion of the total nutritional requirements the NSLP is expected to provide and the complexities associated with determining nutritional status, it is questionable that such a study would be successful in accomplishing its objectives."

We view the apparent contradictions in USDA's position with some concern. In our opinion, the Congress has provided substantial funding and a clear mandate for the program to safeguard schoolchild health. It is possible that NSLP is safeguarding health but, based on present information, it is equally likely that Federal funds are being spent on a program that is not meeting its objectives. We believe that NSLP can and should have a beneficial influence on schoolchild health. To insure this effect, positive actions must be taken toward evaluating the program's performance. Such actions and priorities are not obvious in USDA's comments.

RECOMMENDATIONS TO THE CONGRESS

In view of the emphasis that the Budget Impoundment Control Act of 1974 places on progam evaluation, and considering the Congress' overall desire for meaningful oversight information, the Congress should:

--Require HEW, the department primarily responsible for research related to schoolchild health, to assist USDA in evaluating NSLP's health impact.

--Review USDA's program evaluation plan before implementation to make certain that it will provide adequate information for program oversight and that it uses the resources and expertise of USDA and HEW in a manner which benefits the evaluation and is in keeping with the respective missions of each agency.

--Require the Secretary of Agriculture, on completion of the NSLP evaluation, to provide a comprehensive report of his findings, together with any recommendations he may have with respect to improving program effectiveness.

The Congress should also be aware that legislation prohibits NSLP from imposing any requirement relative to the teaching of nutrition to schoolchildren. The effectiveness of nutrition education programs is therefore not addressed in this report. Such programs are, however, currently being reviewed by us on a broader scale.

PART II

ABILITY TO ACHIEVE AGRICULTURAL OBJECTIVES

The second objective expressed in the National School Lunch Act is "* * * to encourage the domestic consumption of nutritious agricultural commodities and other food. * * *"

Though we found indications that children probably consume a larger quantity and variety of commodities under NSLP than would otherwise be expected, we noted that comparatively little has been done to determine the program's impact on the agricultural economy. We do not know for sure how the program affects the farm and market price of food, and we cannot be certain as to the program's effectiveness as a price support mechanism.

Chapter 5 describes the major program provisions which encourage the consumption of agricultural commodities and finds that some of these provisions may operate to the detriment of NSLP's nutritional goals. In fact, in view of recent changes in the Nation's agricultural economy (transition from a period of oversupply toward a state of general equilibrium), the program's emphasis on stimulating the demand for farm products may no longer be desired.

CHAPTER 5

PROBLEMS IN ACHIEVING AGRICULTURAL GOALS OF THE SCHOOL LUNCH PROGRAM

Relatively small changes in food supply can have a dramatic impact on the market price of food. If the supply of food keeps pace with demand, prices tend to remain stable. But if the supply-demand balance is upset, large price fluctuations can occur, posing a threat to farm incomes and to the consumer's budget.

Beginning in the 1930s a number of Federal programs were initiated to stabilize farm and market prices. Surplus farm production was absorbed in the form of government-held or supported reserves and released from these stocks in times of shortages. To keep the growth of accumulated reserves within manageable proportions, it became necessary to find an outlet for surplus foods. "One of the most obvious outlets was presented by the need for this food by the children of the Nation, many of whom were malnourished to the point of physical and mental deterioration." 1/ As a result, in the mid-thirties, USDA initiated a practice of donating surplus food to schools for use in providing free lunches to needy children. This practice benefited both the nutritional well-being of needy children and the Nation's agricultural policies.

In World War II, the Nation's agricultural production was greatly expanded to assist our European allies. After the war (in 1946), the European demand for U.S. farm products slackened and the agricultural economy was threatened with oversupply. Federal price stabilization efforts faced an era of rising program costs and huge crop surpluses. As a result, the National School Lunch Act of 1946 included this agricultural objective: "* * * to encourage the domestic consumption of nutritious agricultural commodities and other food." This objective intended the National School Lunch Program to be both an outlet for surplus foods and a vehicle which, by making sizeable purchases of foods in local markets,

---

1/U.S. Senate, "Providing Assistance to the States in the Establishment, Maintenance, Operation, and Expansion of School-Lunch Programs," 79th Cong., 1st Sess., Rep. No. 553, July 1945.

would stimulate the overall domestic demand for food, thereby helping to stabilize farm and market prices.

NSLP'S CONSUMPTION OF AGRICULTURAL PRODUCTS

The Senate Committee on Agriculture and Forestry supported the establishment of NSLP indicating:

> "The school-lunch program becomes an organic part of the agricultural program of the United States. The amount and dollar value of food which would be consumed in * * * [the NSLP] * * * is in itself not inconsiderable. * * * an estimate has been made on the basis of meal standard and matching requirements which would indicate that in the first year of its operation approximately $186,000,000 would be expended for foods, and this would increase as the matching requirements [local and State contributions required by the act] increased. There is also the indirect result of increasing the use of foods through education. An established and regular market for the agricultural production of this country is provided which would, in great measure, not exist if this legislation were not enacted. An organized outlet is established for the occasional surplus in production which exists in almost every agricultural commodity field." 1/

As foretold by the Committee, NSLP has come to represent an important market for the Nation's agricultural products. The program's food costs in fiscal year 1975 amounted to more than $2.2 billion, as shown on the next page.

1/See footnote 1, p. 55.

Table 5.1

NSLP Food Costs, Fiscal Year 1971-75 (note a)

Fiscal year	USDA commodity distributions	Local market food purchases	Total
	(millions)		
1971	$277.3	$1,132.5	$1,409.8
1972	312.1	1,250.8	1,562.9
1973	260.2	1,408.4	1,668.6
1974	316.1	1,615.2	1,931.3
1975 (est.)	421.3	1,808.4	2,229.7

a/Source: FNS/Program Reporting Staff.

Local market purchases

Since 1971, over 80 percent of NSLP's annual food needs have been purchased by schools in local markets. These purchases, by 1973 estimates, represent about 1.5 percent of the overall U.S. food market. Their size, coupled with some evidence that the program increases food intakes, provides some basis for assuming that NSLP strengthens the demand for agricultural products. However, we do not know of any study which has determined the precise impact of these increases on the Nation's agriculture economy--either in terms of the farm and market price of food or as means of fostering the production of needed commodities.

An outlet for surplus food

NSLP has also supported the Nation's agricultural policies as an outlet for foods acquired through direct market support operations of the USDA. In 1945 USDA described the value of such outlets as follows:

> "Last October, a hurricane blew tremendous quantities of apples off the trees in the Northeastern States. Growers were faced with the prospect of a substantial loss. The War Food Administration purchased about 400,000 bushels of those apples to support the market and protect growers from what appeared to be an almost certain loss. Although school-lunch programs were only beginning to get under way at the time, they absorbed

half the apples we purchased--apples that would surely otherwise have been wasted before they could have moved in the normal channels of trade." 1/

During the late 1940s and in the 1950s the Nation's farms produced surpluses which were in part purchased in Federal price support programs and donated to schools, other institutions, and needy families. Although these donations were put to good use, they were nevertheless a by-product of policies designed to protect farm incomes until an acceptable balance between farm production and consumer demand could be achieved.

In the late 1960s, U.S. agricultural policies were changed. As government loan and storage programs were curtailed, the general pressure for surplus donations decreased and most of the Federal food distribution programs were phased out. NSLP then became the Nation's primary outlet for USDA's food distributions.

The utility of the NSLP outlet was again demonstrated in 1974 when a set of unusual conditions caught U.S. beef producers in a severe cost-price squeeze. A summer drought and an unexpected short crop of feed grains raised cattle production costs while cattle prices declined. To assist this threatened industry, the administration stepped up purchases of beef and pork for school lunches as a way of shoring up meat prices and warding off bankruptcies among the Nation's livestock feeders.

In recent years, however, there has been a sharp decline in the quantities and types of foods qualifying for purchase under price stabilization and surplus removal programs. Concerned with maintaining a distribution system for the smaller volume of commodities, USDA sought an alternative means of supporting NSLP--by replacing commodity donations with a cash subsidy. The Congress, on the other hand, encouraged States to continue their commodity distributions by (1) mandating a prescribed level of commodity support for NSLP and (2) authorizing USDA's purchase of nonsurplus commodities when necessary to meet the mandated distribution requirements. The continuing use of this distribution

---

1/See footnote, p. 55.

system, in addition to assuring an outlet for foods acquired in USDA's market support operations, has provided sizeable savings in NSLP food costs (as described in ch. 8). It should be noted, however, that USDA's food purchases are primarily directed toward supporting the Nation's agricultural market rather than satisfying NSLP requirements.

IMPACT ON THE AGRICULTURAL ECONOMY

What would happen to the agricultural economy if NSLP did not exist? How would the production of needed commodities be affected, and what would happen to the farm and market price of food? The answers to such questions are, in our opinion, the "bottom line" for assessing NSLP's effectiveness as an agricultural program.

Over the years, USDA and other organizations have published a substantial amount of research on NSLP food costs, student dietaries, and food preferences. Much of this research supports the conclusions that NSLP (1) increases food demand, (2) modifies consumption patterns (possibly enhancing the utility of price support and surplus removal programs), and (3) constitutes an important market for agricultural products; and these conclusions lead to a presumption that NSLP affects the agricultural economy. The presumption is probably correct; however, it is important to realize that neither the presumption itself nor its supporting research constitutes an evaluation of NSLP's impact on the agricultural economy.

To date, we know of only two studies that have actually looked at NSLP's effectiveness as an agricultural program. Both of the studies were sponsored by USDA, and were brought to our attention by USDA's Economic Research Service (ERS). One study used a commodity-by-commodity approach to evaluate NSLP's impact on the demand for particular commodities (e.g., carrots, lettuce, milk). The other study--a sector-by-sector approach--assessed the program's influence on the business receipts of various economic sectors (e.g., agriculture, meat and poultry manufacturing, wholesale trade).

While these studies do not answer all of the questions we posed earlier, we believe that they represent important approaches for determining NLSP's impact on agriculture. To illustrate these approaches, we have included a summary of each study below. We must point out, however, that we have not made an indepth appraisal as to the validity of either study's findings. The summaries are intended solely to illustrate the approaches used and the types of findings they provide.

Commodity-by-commodity approach

Using the commodity-by-commodity approach, a 1950 study [1] analyzed the Iowa school lunch program's impact on the demand for particular commodities during the 1947-1949 school years. The study determined the number of NSLP lunches served during each of the school years, the purchases made by the schools for lunches in each year, and the purchases made by homes for the same number of lunches. (Homes purchases were estimated from a sample of student dietaries; NSLP purchases included surplus commodity shipments and were estimated from the purchase records of a sample of Iowa schools.)

The total food purchases made by the schools for lunches were subtracted from the corresponding purchases made by the homes. This difference, or market support, was computed both upon a per meal basis and a total basis. Table 5.2 shows the total support given certain commodities by the Iowa school lunch program for the school years 1947-1948 and 1948-1949.

---

[1] Nelson, P. E., "Market Support Given Certain Commodities by the Iowa School Lunch Program," Journal of Farm Economics, May 1950.

Table 5.2

Iowa School Full Lunch Program Support For Certain Commodities (note a)

	1947-1948		1948-1949	
	Positive Pounds	Negative	Positive Pounds	Negative
		Canned Vegetables		
Corn	8,439		9,613	
Green Beans	199,446		227,913	
Peas	69,785		79,716	
		Fresh Fruits and Vegetables		
Apples		56,897		65,011
Bananas		180,061		265,761
Cabbage	52,776		60,308	
Carrots	1,176,993		1,344,989	
Celery	486,114		555,497	
Lettuce		123,951		141,613
Onions	20,487		23,411	
Potatoes	867,469		991,282	
		Meats		
Beef		119,548		136,611
Pork		409,877		458,694
Poultry	99,977		103,962	
		Miscellaneous Commodities		
Eggs		84,565		96,634
Flour	85,314		97,491	
Milk	b/313,836		b/392,934	
Shortening	65,679		75,282	

a/A number of commodities were excluded from the study, either because the available records were not adaptable to study purposes, or because they were too fragmentary. Source: "Market Support Given Certain Commodities by the Iowa School Lunch Program," Journal of Farm Economics, May 1950.

b/Gallons.

As stated in the study,

"An examination of these results shows that the current Iowa "full lunch" program gives negative support to several commodities, perhaps the most important being beef and pork. However, these items are well represented in the students' total dietaries, at least for certain age groups. [Although NSLP patrons consumed less protein for lunch, the study's dietary component found that the overall (24-hour) protein intakes of all students approximated the recommended allowances.]

* * * * *

> "When only the lunch meal is considered, the school program appears to contribute both market support and nutritional supplementation in the case of milk. However, it is interesting to note that * * * the total daily calcium intake * * * was equivalent for both school and non-school lunch students. Thus, it is possible that the apparent support is not equivalent to actual support, as has been the case for all other commodities.

* * * * *

> "The support given leafy green and yellow vegetables [with the exception of lettuce] presents a clear cut example of support combined with dietary supplementation. However, a complete analysis of these Iowa results [possibly not representative of the more industralized States] suggests that the school lunch program's effectiveness as an overall price support mechanism may have been overemphasized. * * *"

Although this study is dated and deals with a program much smaller than NSLP as it is is currently designed, it does illustrate a number of important points. For example,

- --NSLP's net impact on demand should be assessed in terms of changes in the overall (24-hour) diet, not in terms of changes in lunch intakes. 1/
- --The school lunch program's "demand for agricultural products" is, in fact, a collection of demands for specific commodities. (Raising the question as to whether the focus of an evaluation should be on

---

1/In commenting on our report, FNS stated (see app. I):
"* * * the Department is conducting a survey to determine the kinds and amounts of food used in the nation's schools. This national probability sample of food use will provide information to further evaluate the impacts of the NSLP (and the School Breakfast Program) on the demand for agricultural products. An outside contract for the conduct of this study has been underway for some time. Data collection has been completed and analysis is in progress."
In subsequent contacts with FNS, we found that the survey does not include information relating to the at-home diets of children. We doubt, therefore, that the work will support a reliable appraisal of NSLP's net impact on the demand for agricultural products.

NSLP's support of particular commodities or on its support of the overall agricultural economy.)

The commodity-by-commodity approach is the only means that we know of for determining NSLP's effectiveness in supporting a particular commodity. It appears to be worthy of further consideration both as a technique for assessing the program's influence on selected commodities, and as a tool for evaluating the performance of the commodity procurement and distribution programs.

Sector-by-sector approach

A 1976 study 1/ by ERS used a computer model to analyze NSLP's impact on the national economy during calendar year 1972 and fiscal year 1974. The study also analyzed three alternatives to the 1974 NSLP: a universal free-lunch program, a free-lunch program for those eligible and a reduced-price lunch for other students, and a free-lunch for children from poverty households only.

Program comparisons were based on the assumption that personal income taxes were increased by the amount needed to pay the Federal Government's share of NSLP costs. The tax increase for each program variation (treated as a transfer of "expenditure power" from taxpayers to schools and/or the suppliers of commodities) was used to compute NSLP's net impact on

--the business receipts among industry sectors (e.g., agriculture, retail trade),

--gross national product, and

--the number of jobs.

Table 5.3 shows NSLP's impact on business receipts and gross national product for fiscal year 1974. The effects of cash contributions and the commodity program are shown separately. As explained by ERS:

1/USDA, ERS, Economic Effects of Federal Contributions to the U.S. School Lunch Program: Calendar Year 1972 and Fiscal Year 1974, Agricultural Economic Report No. 350, Sept. 1976.

Table 5.3

Changes in U.S. Business Receipts and Gross National Product Associated with Federal Contributions to NSLP, Fiscal Year 1974 (note a)

Changes in business receipts by industry sector	Contribution Cash (note b)	Contribution Commodity (note c)
	(thousands)	
Agriculture, forestry & fisheries	+$ 331,535	+$ 204,547
Mining	+ 710	- 577
Construction	+ 9,126	- 445
Manufacturing:		
Food manufacturing—		
Meat & poultry products	+ 137,662	+ 136,477
Dairy products	+ 255,161	+ 66,973
Grain mill products	+ 26,236	+ 67,888
Bakery products	+ 21,282	- 3,082
Canned & preserved foods	+ 100,649	+ 38,801
Other foods & beverages	+ 18,084	+ 42,230
Total	+ 559,074	+ 349,287
Nonfood manufacturing--		
Clothing	- 27,025	- 10,330
Other nonfood manufacturing	- 29,270	- 8,873
Total	- 56,295	- 19,203
Total manufacturing	+ 502,779	+ 330,084
Local & suburban transportation	- 3,453	- 1,390
All other transportation	+ 17,952	+ 9,004
Communications	- 8,600	- 4,308
Gas, electric, water & sanitary utilities	+ 3,618	- 7,467
Wholesale trade	+ 51,994	+ 2,615
Retail trade	- 106,109	- 41,476
Finance, insurance & real estate	- 134,115	- 49,139
Personal services	- 17,726	- 6,820
Physicians & dentists	- 18,086	- 7,138
Hospitals & laboratory services	- 16,703	- 6,647
Education (private)	- 9,132	- 3,553
Other sectors d/	- 30,596	- 8,135
Total change in business receipts	+$ 573,194	+$ 409,155

Change in gross national product	Contribution Cash	Contribution Commodity
	(thousands)	
Combined household sectors:		
Income from new jobs	$ 378,648	$ 24,265
Plus decrease in taxes & savings	28,002	26,600
Minus tax increase to fund Federal school contribution	1,085,000	319,218
Equals change in consumption exp.	- 678,350	- 268,353
School lunch sector:		
Change in school lunch expenditures	1,083,382	- 655
Minus decrease in factor payments e/	7,498	- 3
Plus value in foods given schools	-	319,218
Equals change in consumption exp.	1,075,884	+ 318,566
Net change in combined sector consumption expenditures equals:		
Change in gross national product	+$ 397,534	+$ 50,213

a/Source: Economic Effects of Federal Contributions to the U.S. School Lunch Program: Calendar Year 1972 and Fiscal Year 1974, USDA Pub. AER No. 350, Sept. 1976

b/The nonparticipant household sector was taxed $1,085 million to fund the Federal cash contribution to schools. The schools expenditure of the cash contribution was treated as an increase in final demand of this amount. Meeting this increase in final demand required additional economic activity. This increased activity resulted in a contribution to gross national product of $397,534 thousand.

c/The nonparticipant household sector was taxed $319,218 thousand to fund the Federal commodity contribution to schools. The Federal purchase of commodities was treated as an increase in final demand of this amount. Meeting this increase in final demand required additional economic activity. This increased activity resulted in a contribution to gross national product of $50,213 thousand.

d/Other sectors is an aggregate composed of: Direct and transferred imports: business travel & gifts: office supplies: Federal, State & local government enterprises; and other services.

e/In this sector, it is composed primarily of depreciation of School Lunch equipment.

> "In 1974, the cash transfer of about $1.1 billion resulted in a net increase in business receipts of $573.2 million and in GNP of $397.5 million. With respect to business receipts, some sectors gained while others would have gained more if there had been no program. Thus, agriculture, food manufacturing, and the wholesale trade sectors gained a total of $942.6 million; whereas other sectors such as the retail trade sector would have gained $106.1 million more without the program. Schools buy primarily from wholesalers and food manufacturers.
>
> "Commodity distribution yielded analogous results. In fiscal year 1974 when the USDA purchased $319.2 million of food products which were distributed to the schools, the business receipts for the Nation rose by a net $409.2 million and GNP by $50.2 million. Agriculture, food manufacturing, and the wholesale trade sectors gained $556.4 million in business receipts while retail trade would have gained $41.5 million more in business receipts without it."

Table 5.4 on the following page presents the number of new jobs associated with the change in business receipts due to the cash and commodity contributions. Whenever the change in business receipts is greater with the Federal contribution, a "+" is shown. When the increase in business receipts is less with the contribution, the job figure is cited with a "-." For all sectors, 26,383 jobs were added by the cash contribution, and 12,052 jobs were added by the commodity program.

The economic impact of a cash contribution to the school lunch program is not the same as the impact of a commodity contribution. Cash contributions, for example, tend to increase employment in the "Manufacturing: Bakery products" sector. Commodity contributions have just the opposite effect. (See table 5.4.)

Notice also that the economic impact reported for cash in the tables is based on a funding level about 3.4 times greater than that used for commodities. (See footnote b, table 5.3: $1,085 million divided by $397.5 million.) Thus, while table 5.3 shows the cash contribution to have the larger overall impact on meat and poultry manufacturing ($137.7 million vs. $136.5 million), the commodity contribution has the greatest impact "per dollar of Federal funds" contributed to the school lunch program.

Table 5.4

Net Changes in Job Numbers Resulting from Federal Contributions to NSLP, Fiscal Year 1974

Sector	Net change in number of jobs due to	
	Cash contribution	Commodity contribution
Agriculture, forestry, & fisheries	+ 26,389	+ 16,281
Mining	+ 15	- 12
Construction	+ 269	- 13
Manufacturing:		
Food manufacturing--		
Meat & poultry products	+ 1,942	+ 1,925
Dairy products	+ 4,665	+ 1,225
Grain mill products	+ 304	+ 786
Bakery products	+ 815	- 118
Canned & preserved foods	+ 2,447	+ 943
Other foods & beverages	+ 272	+ 636
Total	+ 10,445	+ 5,397
Nonfood manufacturing--		
Clothing	- 2,744	- 1,049
Other nonfood manufacturing	- 945	- 286
Total	- 3,689	- 1,335
Total manufacturing	+ 6,756	+ 4,062
Local & suburban transportation	- 276	- 111
All other transportation	+ 584	+ 293
Communications	+ 372	- 186
Gas, electric, water, & sanitary utilities	+ 56	- 122
Wholesale trade	+ 2,392	+ 120
Retail trade	- 11,265	- 4,403
Finance, insurance, & real estate	- 2,694	- 987
Personal services	- 2,648	- 1,019
Physicians & dentists	- 613	- 242
Hospitals & laboratory services	- 2,121	- 844
Education (private)	- 262	- 102
School lunch	+ 11,806	- 7
Other sectors (note a)	- 1,633	- 656
Total number of new jobs	+ 26,383	+ 12,052

---

a/ Other sectors is an aggregate composed of direct and transferred imports; business travel and gifts; office supplies; Federal, State, and local government enterprises; and other services.

Source: Economic Effects of Federal Contributions to the U.S. School Lunch Program: Calendar Year 1972 and Fiscal Year 1974, USDA Pub. AER No. 350, Sept. 1976.

An important capability of the sector-by-sector approach is that it can be used to compare the economic (and to some extent, the income-maintenance) impact of proposed NSLP fiscal actions. Such impacts, however, are measured within the context and specifications built into the model. 1/ The model does not describe NSLP's impact on the consumption of a particular commodity (e.g., lettuce, cabbage), nor does it describe the program's impact on the farm and market price of food. 2/

We believe that ERS' initiative in developing the sector-by-sector approach is commendable. While the approach may not address the specific issues that we believe are essential for evaluating NSLP's effectiveness as an agricultural program, it does provide an important perspective of NSLP's contribution to the Nation's economic policies. The ERS model may be of use to decisionmakers in appraising the economic effects of alternative NSLP fiscal policies.

1/In the case of the ERS model, economic activity is primarily measured in the context of business receipts (or sales) among industry sectors; computational processes are guided by specifications describing the demand interactions between sectors. The demand specifications (describing how each sector apportions its "income from sales" toward purchases from other sectors) are perhaps the most critical part of any sector-by-sector model. The 1976 study, based on a retrospective analysis of NSLP's economic impact during the 1972-74 era, was supported by ERS' evidence that there were no fundamental differences between the model's specifications and actual data for that period. The use of the same specifications in computing present or future impacts, however, implies the assumption that purchase patterns will remain constant and that technological change will not materially affect the real cost of goods.

2/The ERS model, like any input-output analysis, implicitly assumes that all additional demand is "real." In an inflationary economy, characterized by "tight resources" and inflexibility of supply, the additional demand incorporates "price increases" which do not represent "real additional demand."

POSSIBLE CONFLICT WITH NUTRITION OBJECTIVES

NSLP's effectiveness as a nutrition program depends on student participation, which to some extent depends on the form and content of the lunch itself. Since participation in the program is voluntary, the lunch, in addition to being a nutritious meal, must be presented in an appetizing manner. In appraising the success of this endeavor, authorities have expressed concern about

--the low levels of student participation (implying difficulties in getting children to eat the NSLP lunch) and

--the excessive amounts of plate waste (implying that the lunch is unappetizing or too large and that only a portion of its nutritional value is consumed).

There are two aspects of NSLP in which agricultural considerations may be retarding the program's nutritional effectiveness. These are (1) the Secretary's prescribed meal standard and (2) the method of distributing commodities. In each instance the potential problem is one of administrative practices rather than legislative provisions and appears to adversely affect student participation.

Differences in type A pattern and the program's nutritional target

Legislation requires that lunches served by schools participating in NSLP shall meet the minimum nutritional requirements prescribed by the Secretary. Although the nutritional target is one-third RDA per meal, the Secretary also requires the use of specified quantities and groups of foods.

The current meal standard, the type A pattern, is composed of: 1/

--One-half pint of fluid milk. 2/

1/These requirements are based on the food needs of 10- to 12-year-olds. Size of servings should vary in relation to the age of the children. Substitutions may be made to meet special medical needs.

2/The definition of milk was expanded in 1973 to include fluid forms of whole, low-fat, and skim milk, cultured buttermilk, and flavored forms of these milks.

--Two ounces (edible portion) of lean meat, poultry, or fish; an equivalent quantity of an alternate such as cheese, cooked dry beans or peas or peanut butter, or an equivalent combination of any of these.

--Three-fourths cup serving of two or more vegetables or fruits (full-strength fruit or vegetable juices may be counted as part of this requirement).

--One slice of whole grain or enriched bread, or an acceptable equivalent. [1]

--One teaspoon of butter or fortified margarine. (This requirement was deleted from the pattern in June 1976.)

This food-based pattern (developed in 1946) provides a practical means for insuring that all food service personnel, regardless of their training, can understand the program's nutritional requirements. The pattern also reflects the fact that, until recently, most schools prepared NSLP lunches primarily from raw food ingredients.

Although the type A pattern may be well suited for using donated commodities, its flexibility as a meal-planning tool is essentially limited to a choice of items within specified food groups. The pattern limits the form and content of school lunches. One-third RDA can be provided in alternative ways. As stated by Dr. Jean Mayer, Professor of Nutrition at the Harvard School of Public Health:

> "American eating habits have changed drastically in the last 20 years and today's typical lunch is not usually a full-sized meal. Peanut butter or ham and cheese on whole-grain bread, a glass of milk and fruit or a glass of orange juice, is a nutritious and well-balanced meal, and more in keeping with today's eating habits. Food does little good unless it is eaten. And, now, of all times, we can ill afford to waste either money or food. Perhaps we should begin to change the school lunch program by trying to save food and money. We will be better able to feed every child in need."

- - - -

In commenting on our report, FNS stated, "Dr. Mayer's example of a typical lunch supports the Type A Pattern with the exception of one less fruit or vegetable." (See app. I.) We might add that milk is also an optional item in Dr. Mayer's lunch. This illustrates our point relating to the differences between the type A pattern and the program's nutritional target. In point of fact, and irrespective of its nutritional value, Dr. Mayer's "typical lunch" does not meet USDA's pattern requirement. It would not qualify for Federal reimbursement as an NSLP lunch.

---

[1] In 1974, the definition of bread was expanded to include crackers, taco shells, pizza crust, etc.

Some food service directors believe modifications in meal pattern will improve participation and decrease waste

In 1975 the Senate Select Committee on Nutrition and Human Needs asked State School Food Service Directors: "What, if any, modifications in the meal pattern should be made to help increase participation and decrease waste in the lunch program?" 1/ Opinion was divided. About half believed that the type A pattern was needed to safeguard the program's nutrition standards and that greater emphasis on nutrition education would improve participation. The other half sought definite changes in the type A pattern. Some of the responses included:

> "There should be more diversity permitted * * *. The current pattern of the Type A lunch contributes to food waste and discourages paying students from participating in the program."
>
> "Serious considerations should be given to re-structuring the meal pattern requirements to permit children to receive the basic nutrients without having a specified component, such as milk, as a daily requirement. It is possible for a single component to become prohibitive because of price."
>
> "Permit a dairy alternate for fluid milk just as we do with meat alternate."
>
> "Remove the butter requirements in the Lunch Program. Also change the fruit and/or vegetable requirement that

---

1/U.S. Senate, Select Committee on Nutrition and Human Needs, School Food Program Needs--1975, U.S. Government Printing Office, Wash., D.C., Apr. 1975.

> stipulates two sources of such fruit and/or vegetables." 1/
>
> "Offer either juice or milk, not both."
>
> "According to the requirement, in order to be counted in meeting the meat/meat-alternate requirement the high protein foods must be served in a main dish or main dish and one other item. We fail to see the nutritional advantage of this for it seems immaterial where the protein source is used as long as the required level is achieved for the total meal."

By eliminating the pattern requirement and prescribing meal standards as simply "one-third RDA" (1) the type A lunch would continue to be an acceptable meal and (2) nutritionists would be accorded greater flexibility in designing menus. This action might provide lower cost lunches and, at the same time, be more effective in achieving the program's nutritional objectives (e.g., provide higher levels of student participation and a more complete consumption of program lunches).

- - - -

In commenting on this report (see app. I), FNS described as apparently unfounded our contention that one-third RDA can be met in many forms and that the inflexibilities of USDA's food pattern contribute to higher costs, food waste, and a meal design which is not representative of today's eating styles. Further, in regard to TSNS (see ch. 3), indicating that iron-to-calories ratios were lower for school lunches than for children's home diets, FNS stated:

> "A recent nutrient calculation of the Type A Pattern, based on foods representative of frequency of service to 60 test groups over a four week period shows that the Pattern furnishes approximately 8 mg. iron per 1,000 calories. This amount is well over the 6 mg. iron per 1,000 calories which is the amount expected from a varied, well-balanced diet as specified by the RDA's."

As we pointed out in our description of TSNS and will mention again in describing figure 5.1 of this chapter, there are indications that the type A pattern provides too

---

1/The butter-margaine requirement was deleted from the type A pattern in June 1976.

little iron. We examined the research 1/ supporting FNS' statement and found that the statement was not based on the type A pattern at all, but rather on the School Lunch Pattern, 1976. The School Lunch Pattern, 1976 (hereafter referred to as the 1976 Pattern), was developed by the Agricultural Research Service in consultation with FNS and proposed as a replacement for the type A pattern.

The 1976 Pattern (see table 5.5), and the concerns about the type A pattern which it attempts to alleviate (see table 5.6), support our position about inflexibilities in the type A lunch; and it should be noted that the 1976 Pattern did two things: it reduced the fat content of lunches and it increased the use of iron-enriched products (e.g., bread and rice). Thus, it not only improved the iron-to-calorie ratio of lunches, it also improved the total amount of iron served per lunch.

On the other hand, the butter-margarine requirement has been removed from the type A lunch. This action, while improving the meal's iron-to-calorie ratio (by decreasing calories only), has not increased the total amount of iron provided by the NSLP lunch.

USDA recognizes the need for improvements in the NSLP lunch

USDA also expressed concern about the acceptability of the school lunch program in its present form. Changes in NSLP's meal pattern have been the subject of much review. The principal alternative proposed thus far is the Nutrient Standard Menu (NSM). Using the NSM procedure, a meal is designed to achieve a specified nutrient goal (e.g., one-third RDA). The emphasis is on the nutritive value of individual food items rather than on a meal pattern. One means of assessing the NSM alternative is by analysis of "plate waste," reported as a problem with the type A pattern. A study by Colorado State University 2/ compared NSM with the type A pattern. Data was collected from students consuming type A lunches at 58 schools in the fall of 1972. The following spring, schools changed to the NSM technique and the survey was repeated. Figure 5.1 on page 75

1/USDA, Consumer and Food Economics Institute, Agricultural Research Service, School Lunch Pattern, 1976, July 1976.

2/Harper, J. M., and G. Jansen, Comparison of Type A and NSM Menus in the National School Lunch Program: Phase II Report, Colorado State University, FNS Contract No. 12-35-600-85, Aug. 1973.

Table 5.5

School Lunch Pattern, 1976
(Proposed)

Food	Preschool child		Elementary school child		Secondary school child
	1-2 years	3-5 years	6-8 years	9-11 years	12-17 years
Cooked meat (lean), poultry, fish: a/ Alternates may replace all or part of the meat, poultry, or fish: 1 egg, 1/2 cup cooked dry beans or peas, 2 tablespoons peanut butter, 1 ounce cheddar-type cheese, replaces 1 ounce of cooked lean meat, poultry, or fish.	1 ounce	1 ounce	1-1/2 ounces	2 ounces	3 ounces
Vegetable and/or fruit: Must include at least two kinds	1/4 cup	1/2 cup	1/2 cup	3/4 cup	3/4 cup
Bread (whole grain or enriched) Alternates may replace all or part of the bread: Bakery products made of whole-grain or enriched meal or flour b/, 1/2 cup of enriched rice or pasta may replace 1 slice of bread.	c/1/2 slice	1 slice	d/1-1/2 slices	d/1-1/2 slices	1-3 slices
Milk: Alternates may replace all or part of the milk: 3/4 ounce cheddar-type cheese e/, 3/4 cup of cottage cheese, 3/4 cup of ice cream or ice milk, 1/2 cup of unflavored yogurt replaces 1/2 cup of milk.	f/1/2 cup	3/4 cup	f/3/4 cup	1/2 pint	1/2 pint

a/ Use no more than one egg in meeting this requirement. Textured vegetable protein products and protein fortified, enriched macaroni-type products may be used as alternates for part of the requirement (See USDA fact sheets).

b/ For amounts of various bakery products that may replace 1 slice of bread, see "A Menu Planning Guide for Type A School Lunches," (PA 719) May 1974 revision, page 11.

c/ Serve 1/2 ounce or more of precooked dry infant cereal or other cereal with added iron in place of or in addition to bread two or more days per 5-day week, if such cereal is not served to the child as part of a breakfast or snack served at the center.

d/ Or eight slices of bread, or equivalent, per 5-day week.

e/ If cheese replaces meat in the lunch, it cannot replace milk also.

f/ Serve 1/2 pint if it is impractical to serve 1/2 cup or 3/4 cup.

REMEMBER: These amounts of foods are important as the foundation for a nutritious lunch. Their use is mandatory for lunches served under the National School Lunch Program.

Source: School Lunch Pattern, 1976.

Table 5.6

Concerns About the Type A Pattern and Changes to Help Alleviate the Concerns in the 1976 Pattern (note a)

Concern about existing Type A pattern	Change to help alleviate concern in the 1976 pattern
Excessive plate waste occurs because the pattern--	
Requires some foods that are not well liked, notably vegetables and fruits.	Amounts of vegetables and fruits for children of some ages are reduced.
Requires more food than some children can eat.	Pattern is specific for 5 different age levels. Pattern provides only 18 to 25 percent of the RDA for food energy (calories).
Requires milk, which some children cannot tolerate well for physiological reasons.	Milk products that usually can be tolerated, such as cheese and yogurt, may be used in place of milk.
Results in lunches unlike those children usually eat.	Flexibility is added: Rice and pasta may replace bread. Bread requirement may be spread over 5-day week. Alternates for milk may be served.
Costs of lunches are high because the pattern--	
Requires too much meat.	Amounts of meat for children of some ages are reduced.
Requires too much other food.	Amounts of food are specified to meet needs of 5 age levels.
Planning varied lunches is difficult because the pattern--	
Requires milk as beverage every day.	Alternates may be served.
Requires bread every day.	Alternates may be served.
Nutritional quality of the lunch is questionable because the pattern--	
Is based on RDA that are out of date.	Most recent RDA (1974) were used.
Provides too little iron.	Well over 6 mg of iron per 1000 kcalories--amount expected from a varied, well-balanced diet--is provided.
Promotes lunches that are high in fat content.	b/Butter-margarine requirement is deleted from pattern. Fat in pattern is limited to provide 35-40 percent of kcalories.
Promotes lunches that are high in carbohydrate.	Lunches containing rice and pasta are not required to contain bread also.

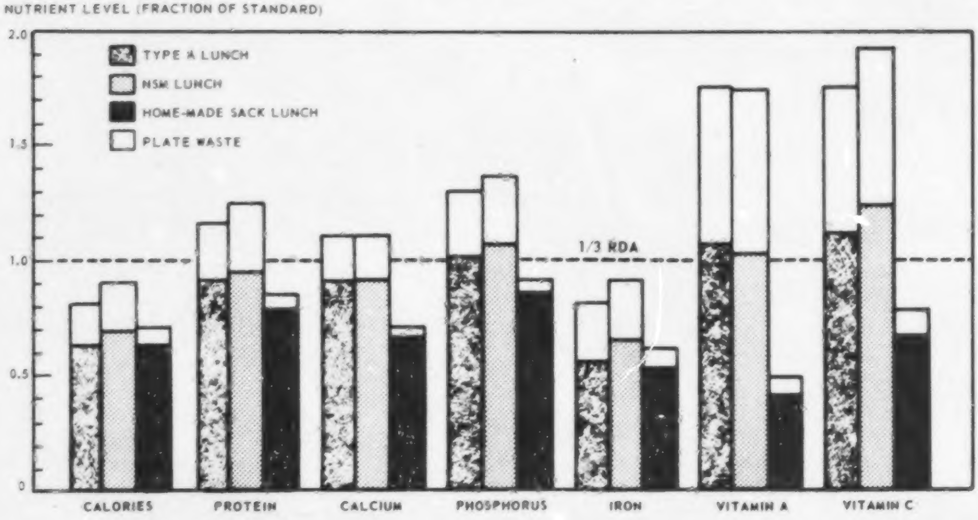
a/Source: School Lunch Pattern, 1976.

b/The butter-margarine requirement was deleted from the type A pattern in June 1976.

shows representative nutrient values for these meals as served to about 1,500 fifth-graders. During the same period Rutgers University examined the nutrient content of 160 sack lunches in New Jersey elementary schools. 1/ For comparative purposes, we have included the nutrient values of these sack lunches with those of NSM and type A lunches shown in figure 5.1.

FIGURE 5.1

TOTAL NUTRIENTS SERVED AND EATEN: ELEMENTARY SCHOOLS



NOTE: BASED ON 7TH EDITION OF RDA

In terms of the one-third RDA requirement, both NSM and the type A pattern evidenced shortfalls in the amount of nutrients actually consumed by children. While NSM indicated a slight increase in nutrient consumption, this appeared largely a function of portion size. Clearly, both NSM and the type A lunch came closer to meeting the one-third RDA requirement than the sack lunch sample. (It should be noted, however, that sack lunches can be but were not structured to meet NSLP's nutrition standards).

1/U.S. Department of Agriculture, Food and Nutrition Service, Proceedings of the National School Food Service Conference, June 27-29, 1972.

(FNS told us that two additional studies 1,2/ have compared computer assisted nutrient standard menus against the type A menu and have found that students consumed proportionately more of the meals planned by the type A pattern.)

With respect to waste, figure 5.1 indicates that the NSM technique did not provide a marked advantage over the type A pattern. However, while 494 of the 675 NSM menus in the study deviated from the type A pattern, most of the deviations were minor; most of the food components were selected from the type A school lunch recipe file. 3/ The comparative amounts of waste indicate that children preferred the foods and/or patterns characteristic of sack lunches.

We believe NSM's emphasis on designing meals to fulfill a nutritional standard is desirable, particularly if NSLP is to provide an optimum supplement for the schoolchild's home diet. (See ch. 3.) However, the essential objectives of NSM can probably be achieved by simply promulgating "nutritional standards" together with a series of sample menus (or patterns). Overregulation or unnecessary requirements in the program's meal standard would probably inhibit nutritionists in designing lunches which are more representative of today's eating styles. 4/

1/Food and Nutrition Department, Dade County Public Schools, Miami, Fla. Comparison Of Type A And Computer Assisted Nutrient Standard Menus, USDA Contract No. 12-35-600-116, June 1975.

2/Division of School Food Service, Memphis City Schools, Memphis, Tenn., Comparison Of Type A and Nutrient Standard Menus, USDA Contract No. 12-35-600-115, Feb. 1975.

3/Following the Colorado State Study, 29 participating menu planners were authorized to use the NSM in their normal school feeding programs. Many have since reverted to the type A pattern because of its simplicity and because the number of recipes provided in NSM planning guides lacked the flexibility of the type A pattern. Only two menu planners continue using the NSM in 1976. FNS is supporting these planners in expanding the variety of foods available in NSM planning guides and in appraising the system's performance and support requirements in a school.

4/In compliance with Public Law 94-105, enacted in Oct. 1975, USDA is now conducting a study which will, among other things, examine possible relationships between plate waste and the nature of the type A pattern. The results of this study are expected to be available in the latter part of 1977.

Timing of commodity distributions has an important impact on nutritional objectives

Although commodity distributions play an important role in providing low-cost meals, improvements in the timing and quantity of deliveries may be needed. The following statements, reported by school food service directors from Kansas (which changed to a program of cash subsidy in lieu of commodities during fiscal year 1975), provide an illustration of how commodity distributions may interfere with menu planning and students' acceptance of the NSLP lunch: 1/

> "* * * [we] received 21,120 frankfurters to use in the month of May. They could not be held over the summer. Students were very unhappy with the lack of variety in the menus. Participation declined."
>
> "We received 120 cases of orange juice February 15 of 1974 and 142 cases of orange juice in August. We will still be using this orange juice most of 1975-1976."
>
> "It was such a pleasure to plan menus and not have to worry about a surge of commodities."

Similar problems are noted in other reports. In most instances, these "commodity surges" appear to be avoidable. They are both a misapplication of food and a detriment to NSLP's effectiveness as a nutrition program. It would be appropriate for USDA to investigate these situations and, where necessary, to implement corrective procedures to see that NSLP's nutritional objectives are not unnecessarily compromised by administrative difficulties or support of the agricultural market.

HAVE AGRICULTURAL GOALS BEEN SATISFIED?

We believe NSLP is successful in strengthening the domestic demand for agricultural products. This belief is based on (1) indications that school lunch participants consume a greater quantity and variety of commodities than would otherwise be expected, (2) substantial purchases of program foods in local markets, and (3) the program's demonstrated capability as a commodity outlet. However, the degree to which this strengthened demand affects the market price of food, or contributes to NSLP's effectiveness as a price support mechanism, is unknown. Such a determination would require further evaluation.

1/George, I., Testimony before the Senate Subcommittee on Agricultural Research and General Legislation, Apr. 1975.

However, we are not sure that an evaluation of NSLP's impact on the agriculture market will provide information appropriate to its cost. In view of recent changes in the Nation's agricultural economy (while significant market imbalances still occur, concern has tended to shift to the problem of shortages and away from the problem of surpluses), the program's ability to increase demand (and hence, the market price of food) may no longer be an appropriate statement of NSLP's purpose. Therefore, we believe the question as to whether or not the program's agricultural objective should remain operative is an issue requiring overall policy determination by the Congress.

RECOMMENDATIONS TO THE SECRETARY OF AGRICULTURE

In order to determine the nutritional standards needed for the National School Lunch Program, we recommend that the Secretary of Agriculture

--Determine, with assistance from HEW, the nutritional standards needed for NSLP to best safeguard schoolchildren's health; and, if found desirable, revise the program's meal regulations to reflect nutritional requirements that will provide meal planners with planning flexibility, improve the program's cost-effectiveness, encourage higher levels of student participation, and reduce plate waste. [1]

--Determine the effect of commodity distribution surges on NSLP's nutritional objective and, if surges are determined to have a significant effect, implement corrective procedures so that agricultural considerations do not compromise the program's nutritional effectiveness.

---

[1] In an earlier report entitled "The Impact of Federal Commodity Donations on the School Lunch Program" (CED-77-32), we recommended that the Secretary of Agriculture include a nutrient standard as an option to the type A lunch pattern to provide menu planners with greater flexibility in using commodities. In making that review, we did not evaluate the adequacy of the type A pattern in improving the nutrition of students. However, on the basis of our current review of various studies of NSLP it would appear that an evaluation of the nutritional standards for NSLP should be done.

AGENCY COMMENTS AND OUR EVALUATION

HEW advised us by letter dated April 14, 1977 (see app. III), that it was willing to assist USDA in carrying out the intent of our recommendation regarding NSLP's nutritional standards.

In a letter dated April 20, 1977 (see app. I), USDA expressed concerns similar to ours regarding program participation and plate waste, but noted that "there are ways of addressing these concerns short of abandoning nationally established meal standards." USDA cited various complexities associated with determining nutritional standards for NSLP beyond the present goal of providing one-third or more of the RDA for children of various ages. It suggested a list of activities for expanding program participation and reducing food waste which included working with food service personnel to improve the appearance and quality of food served; revising the type A pattern to allow smaller portion sizes for elementary school students; and eliminating the sale of snack foods during lunch.

We believe that USDA is earnestly attempting to improve NSLP's performance. However, there appears to be a reluctance on the part of FNS to consider administrative changes in the program's meal standards that might improve NSLP's effectiveness in meeting legislative objectives, especially those concerning the type A pattern. We have not recommended the type A pattern be eliminated out of hand, but rather that nutritional standards be determined and that, based on such standards, needed revisions be made.

In regard to our recommendation concerning the effect of commodity distribution surges on NSLP's nutritional objective, USDA cited their response to our earlier report (CED-77-32) which stated that

> "the Department is required, for the most part, to give first priority to items in surplus and in need of price support, so that controls over the timing and availability of deliveries are often restricted. * * * Greater efforts will continue to be made to achieve improvements and we will encourage the States to establish similar procedures to the extent possible in making deliveries to their local districts."

We believe USDA's actions are beneficial. However, in view of the fact that NSLP's effectiveness as a price support mechanism has not been ascertained, we continue to have questions regarding how USDA allocates NSLP's priorities between agricultural and nutritional objectives.

RECOMMENDATION TO THE CONGRESS

A typical problem arising in programs which have multiple goals is that, under certain conditions, goal conflicts may precipitate undesired side effects within and outside of the program. As indicated earlier, NSLP is a case in point. In addition, a desire to use the program in support of emerging Federal policies may have introduced additional, unwritten objectives which influence the scope and purpose of NSLP. For example, though not explicitly given an income security objective by legislation, the program is currently classified as an Income Security function within the President's Budget.

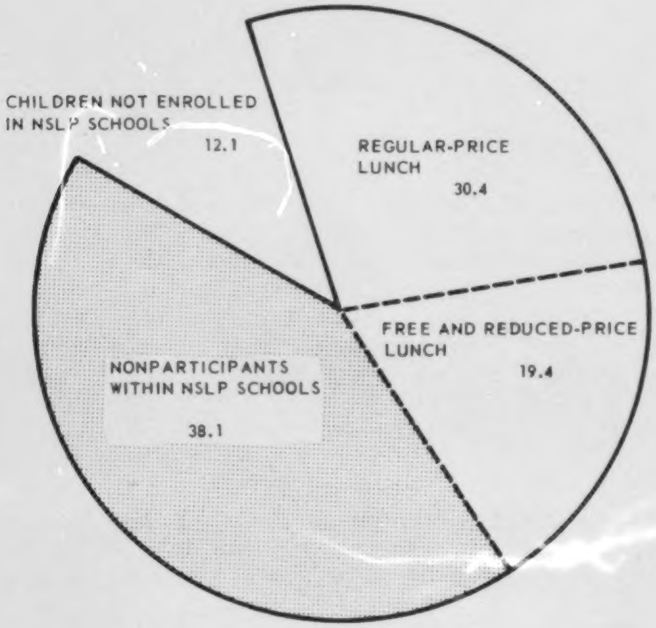
In view of the Congressional Budget Act of 1974's emphasis on clearly stated legislative intent, and the changes in national priorities since enactment of the National School Lunch Program, the Congress should provide policy guidance indicating specifically what the goals of the program should be, prioritize them, and have the program evaluated accordingly.

PART III

PROGRAM COVERAGE

During the 1975 school year, the NSLP lunch was served in about 88,800 schools (about 81 percent of the Nation's total) with an enrollment of approximately 44.8 million students. The number of students participating in NSLP was 25.4 million and, of this number, 9.9 million received free or reduced-price lunches.

PERCENT OF U.S. SCHOOLCHILDREN
BY PARTICIPATION CATEGORY –
FY 1975 (ESTIMATED)



While the number of schools serving the NSLP lunch has increased in recent years, there has not been a proportionate increase in the number of participating students. The participation of regular-price students has declined; but, since the number of children eligible for free and reduced-price meals has increased, overall participation levels have tended to remain constant.

Because program coverage is an important measure of NSLP effectiveness and because student participation in the NSLP lunch has been generally low, we thought a review of participation studies might provide insights for future program improvements. Chapter 6 introduces this issue by describing the growth of NSLP availability and recent trends in student participation. Chapter 7 provides a specific look at the factors which affect student participation.

CHAPTER 6

PARTICIPATION TRENDS

Between 1946 and 1970, there was continuous growth in the number of U.S. schoolchildren. That trend peaked at 52.1 million students in 1970, and by 1975 school enrollment had declined by about 1.2 million students. The decline, associated with a drop in birth rates during the 1960s, has to date affected only elementary school enrollment.

Current census projections indicate further declines in school enrollment. Compared with 50.9 million students enrolled in 1975, the 1980 enrollment in regular day schools is expected to be between 45 and 47 million.

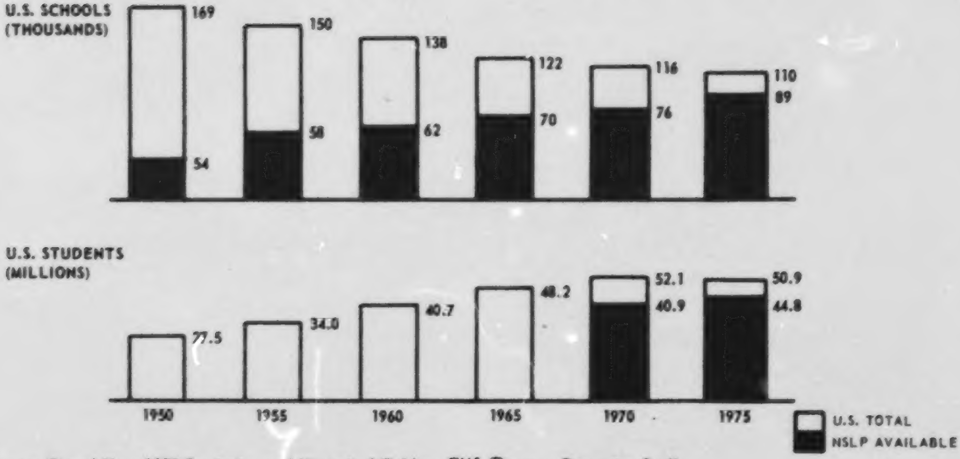
The continuing decline in U.S. enrollment and the current shift of students from elementary to secondary schools (where lunch program participation has traditionally been lower) creates downward pressures on National School Lunch Program participation levels. Actually, of course, many other factors such as expanded program availability, changes in lunch prices, and improvements in the attractiveness of program lunches may interact to change participation.

NSLP AVAILABILITY IN SCHOOLS

In 1950 only 54,000 schools participated in NSLP. (See figure 6.1 on the following page.) By 1975, however, the program had grown to include nearly 89,000 schools with a combined enrollment of about 44.8 million students--approximately 81 percent of the Nation's schools and 88 percent of the schoolchildren.

FIGURE 6.1

GROWTH IN NSLP AVAILABILITY
FISCAL YEARS 1950–75 [a]



[a] Source: Fiscal Year 1973 Statistics and Historical Tables, FNS/Program Reporting Staff.
1975 data based on preliminary reports of the FNS/Program Reporting Staff.
1950–65 NSLP enrollment not available.

In 1974 USDA reported that 86 percent of the Nation's schoolchildren were enrolled in NSLP schools. Of the remaining 14 percent, 4 percent attended schools with other types of food service and 10 percent attended schools without any food service at all, except perhaps for a milk program.

USDA characterized the 18,000 schools without food service as follows:

- --Over half were private, nonprofit schools with a combined enrollment equal to 49 percent of all children attending such institutions.
- --One-third of the schools had enrollments of less than 100 students.
- --Their students were more likely to live in urban areas and/or come from more affluent families. Although 25 percent of the children in NSLP were eligible for free or reduced-price lunches, only 10 percent of the children in schools without food service were considered economically needy.

To expand the program's availability, USDA placed greatest priority on assisting schools without a food service capability, especially schools with a high proportion of needy children. Although Federal funds for nonfood (equipment) assistance 1/ have provided an important means for overcoming physical or financial constraints and bringing new schools into NSLP, progress has been slow. 2/ The Department, indicating increased difficulty in overcoming the attitudinal reasons for schools not joining NSLP, described some of these reasons as follows:

- --School administrators and/or teachers are against school lunches.
- --Children walk home for lunch.
- --Some private schools have too many competing demands for available resources to be used in a lunch program or simply want to operate free of Federal or State assistance.

1/Nonfood assistance funds are used to help schools in low-income areas establish, maintain, or expand food service programs. State and local sources must match at least 25 percent of the equipment costs (the matching requirement may be waived for especially needy schools without food service).

2/The number of NSLP schools increased by 3,048 in the 1972-73 period; 820 in 1973-74; and 1,603 in 1974-75.

In 1974, as a result of these difficulties, USDA reported:

> "The Department now believes that there are a number of schools, particularly private schools, that will never join the national school lunch program. The Department and States will continue to make reasonable efforts to reach these schools, however, and to document the reasons for nonparticipation." [1]

STUDENT PARTICIPATION

Although the student enrollment in NSLP schools increased over the 1971-75 period, the number of participating students remained fairly constant. In fiscal year 1975, 25.4 million students (56.7 percent of the NSLP school enrollment) participated in the program:

Table 6.1

Total Enrollment and Participating Students in NSLP Schools, Fiscal Year 1971-75 (note a)

Year	Students Enrolled (millions)	Students Participating (millions)	Rate of participation (percent)
1971	43.1	24.6	57.1
1972	44.0	24.9	56.7
1973	43.8	25.2	57.4
1974	44.9	25.0	55.7
1975	44.8	25.4	56.7

a/Source: FNS/Program Reporting Staff publications.

In 1975 the "nonparticipants in NSLP schools" (numbering about 19.4 million children) accounted for 75.9 percent of all U.S. schoolchildren who did not eat the NSLP lunch. It appears, therefore, that the NSLP enrollment itself presents the greatest opportunity for further increases in program participation.

---

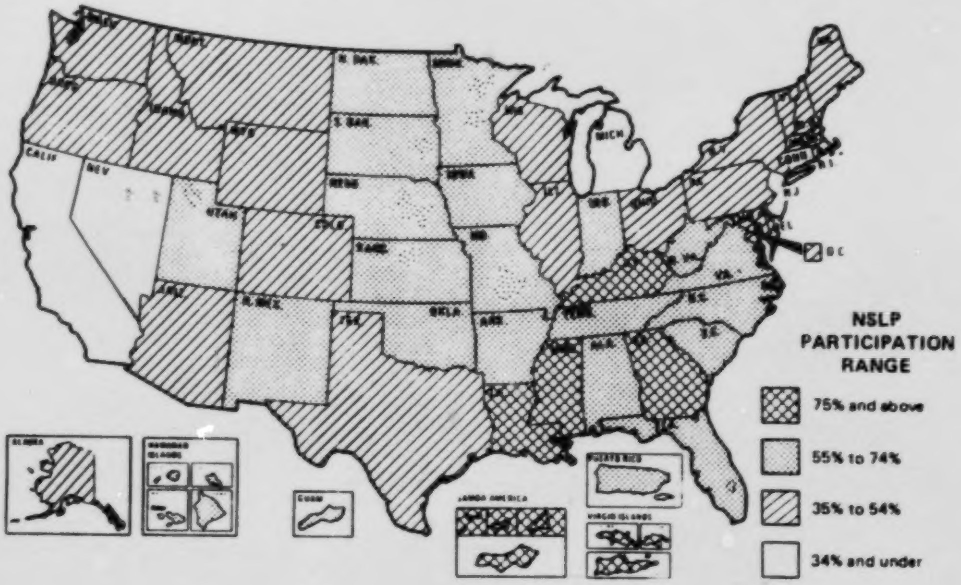
[1] USDA, Comprehensive Study of the Child Nutrition Programs, Committee Print of the Committee on Agriculture and Forestry, U.S. Senate, Wash., D.C., Sept. 1974.

It should be noted, however, that USDA's "participation" values essentially represent the number of lunches which would be eaten daily if the entire enrollment were in attendance (e.g., no absentees). Since many students take lunch less than 5 times a week, these values may substantially understate the number of children who, at one time or another, benefit from program services. 1/

Participation rates of students in NSLP vary greatly among States (see figure 6.2 below). Most of the States with participation rates below 55 percent of enrollment tend to be located in the West and Northeast.

Figure 6.2

NSLP Participation
As Percent of U.S. Enrollment, Fiscal Year 1974 (note a)


NSLP PARTICIPATION RANGE
▩ 75% and above
▨ 55% to 74%
▧ 35% to 54%
☐ 34% and under
CALIF
NEV
UTAH
COLO
ARIZ
N. MEX.
TEX
N. DAK.
S. DAK.
NEBR
KANS
OKLA
MINN
IOWA
MO
ARK
WIS
MICH
ILL
IND
OHIO
TENN
ALA
N.C.
S.C.
VA.
N.Y.
N.J.
D.C.

a/Participation values are based on preliminary estimates.
Source: 1976 Budget Explanatory Notes, Vol. III, USDA.

1/USDA is now undertaking a study on the frequency of student participation in NSLP. This study is scheduled for completion in the second half of 1977 and is expected to provide a better estimate of the number of children utilizing program services.

Regular and reduced-price/free participation

From its inception in 1946, NSLP has provided for serving free or reduced-price lunches to children unable to pay the regular price charged in participating schools. As of 1968, however, these provisions were not being effectively carried out. Accordingly, the Congress first authorized substantial special funding for free lunches in 1968; and, in 1970, Public Law 91-248 was enacted which (1) mandated that free lunches be served to needy children and (2) provided specific guidelines to be used in determining eligibility for free and reduced-price lunches. 1/ (The serving of reduced-price lunches remained a State option, however.)

The impact of Public Law 91-248 has been impressive. Prior to 1968 only 3 million needy children were receiving free lunches. But in the 5 years beginning in 1971, the number of children participating in the free and reduced-price program increased from 7.1 to 9.9 million, a gain of 2.8 million children. 2/ (See table 6.2 on the following page.)

1/The Secretary of Agriculture issues annual poverty-income guidelines based on changes in the Consumer Price Index. States are authorized to set eligibility levels for free lunches up to 125 percent of the Federal guidelines. In the 1971-75 period, the reduced-price program was optional and little used. Since 1976, however, NSLP schools have been required to provide reduced-price lunches, at a price not to exceed 20 cents, for children who are not eligible for free lunches, but whose family's income is below 195 percent of the Secretary's guideline.

2/In 1971-75, FNS program reports consolidated free and reduced-price students into a single participation category. Only 1-2 percent of the total meals served in this period were reduced-price lunches.

Table 6.2

Eligible and Participating Students in the Regular-Price and Free or Reduced-Price Lunch Program, Fiscal Year 1971-75(estimated)(note a)

Fiscal year	Regular-price students: Enrolled (millions)	Regular-price students: Participating (millions)	Regular-price students: Participation rate (percent)	Free and reduced-price students: Enrolled (millions)	Free and reduced-price students: Participating (millions)	Free and reduced-price students: Participation rate (percent)
1971	35.3	17.5	49.6	7.9	7.1	90.7
1972	34.7	16.9	48.7	9.2	8.0	86.7
1973	33.5	16.6	49.7	10.3	8.5	82.8
1974	33.9	15.9	46.8	11.1	9.2	82.9
1975	33.2	15.5	46.6	11.5	9.9	85.9

a/USDA does not publish separate participation rates for regular-price and free/reduced-price students. Our estimates were computed from FNS/Program Reporting Staff publications.

In contrast, there has been a marked reverse trend in the number of regular-price participants. From 1971 to 1975, participation in the regular-price program declined from 17.5 to 15.5 million, a drop of 2 million students.

The increasing share of children eligible for the free and reduced-price programs, together with the higher participation rates of those categories (85.9 percent versus 46.6 percent regular-price participation in fiscal year 1975), has been an important influence in maintaining NSLP's overall level of participation.

CHAPTER 7

FACTORS AFFECTING PARTICIPATION

Nearly 88 percent of the Nation's schoolchildren attended National School Lunch Program schools in fiscal year 1975. Yet, on an average school day, about 43 percent of the NSLP enrollment did not eat program lunches. USDA's "Comprehensive Study of the Child Nutrition Programs" has characterized nonparticipating children as more likely to

--live in urban areas,
--be economically nonneedy, and/or
--attend secondary schools.1/

Although there is general agreement on the need to improve NSLP participation levels, the question remains as to how this can best be accomplished. One of the most widely known factors affecting participation is the price charged for the NSLP lunch. Many school administrators believe that "price" is very important and that increased Federal subsidies would lower student payments, thereby improving participation levels. This may be true. However, price is not the sole factor influencing participation; nonprice factors should also be considered.

INFLUENCE OF NONECONOMIC FACTORS

Several studies have shown that noneconomic factors have an important influence on daily participation levels. Some of the more important factors are:

--the availability of alternative food sources;
--attitudes of school administrators; and
--menu variety, choice, food preparation, and food quality.

Alternative food sources

USDA, noting that nonparticipating children usually obtain lunch from alternative food sources, has identified the following "major sources of competition" for the NSLP lunch (based on the analysis of 1972 survey data):1/

1/USDA Comprehensive Study of the Child Nutrition Programs, Committee Print of the Committee on Agriculture and Forestry, U.S. Senate, Wash. D.C., Sept. 1974.

A la carte items--In schools with a la carte food available (primarily secondary schools) the percentage of students participating in NSLP was only slightly more than half of the comparable percentage for NSLP schools without a la carte (31 percent of enrollment compared to 61 percent).

Sack lunches--Eighty-seven percent of NSLP schools had students who brought sack lunches from home. About 18 percent of the students in NSLP schools ate sack lunches on the day of the survey. Sack lunches were considerably more common among elementary students than among secondary students.

Off-campus foods--Almost half of the Nation's schools permitted students to leave school during lunchtime. NSLP participation in schools allowing students to leave campus at lunchtime averaged about 10 percent lower than those not permitting students to leave.

Attitude of school administrators

Attitudes of school administrators, teachers, and workers also have a bearing on participation. The effect of attitude on the quality of food preparation (and hence, on participation) is reasonably obvious. There is, however, an entirely different aspect of NSLP which is seldom addressed, but greatly affected by admiminstrators' attitudes and decisions--the social climate of the lunchroom.

A student's choice of where and what to eat involves both the food itself and the social aspects of dining. Students, for example, have indicated a need to socialize during the lunch period. Of the many factors affecting the lunchroom's social atmosphere, two appear to have a particularly important impact on participation. These factors, as reported in a USDA study of high school participation, are:

--Length of lunch period and fast service. The length of the lunch period in some schools ranged from 23 to 40 minutes. In the schools with shorter time periods, many students didn't eat or obtained a quick snack from the a la carte line. Over 54 percent of the students indicated that the lunch line was too long and they did not have time to enjoy lunch.

- --Merchandising the type A lunch. The majority of schools with high participation made a special effort to make certain that program lunches were well displayed, attractively served, and easily accessible to students. In most of the low-participation schools, this was not done.

Menu choice and preparation

Participation is also dependent upon the schoolchild's appraisal of the NSLP lunch--its acceptability in terms of food quality, preparation, and presentation. Existing research has indicated the following influences of these factors:

- --Food quality and preparation. In general, studies indicate that students perceive the quality of food used in NSLP as being "average." Many students complain of poorly prepared foods and a dislike of the basic food items used in NSLP menus.
- --Menu variety and choice. A USDA study of 20 high schools found that menu variety and choice of items within the menu were somewhat limited. Fifty-six percent of the students had no choice in the style of the lunch (e.g., soup, sandwich, salad, plate, etc.), and 49 percent had no choice in the components of the lunch.

The impact of the above findings on program participation is underscored by the following excerpt from a 1973 GAO report.

> "In a needy secondary school, which had converted its lunch program from a la carte service to a type A lunch during the 1970-71 school year, general participation fell from an average 850 students daily during the 1968-69 school year to about 630 students daily in December 1971. The principal of this school told us that he considered this drop in participation remarkable because, under a la carte service, no free or reduced-price lunches had been served and that about 75 percent of the students were eligible for free or reduced-price lunches under the type A lunch program. He said that, when the

> type A lunches were served, students had no choice of what they could eat and lost interest in the lunches." 1/

Regular-price participation rates not affected by size of free lunch program

Some school administrators believe that the presence of a large number of students receiving free or reduced-price lunches within a school tends to inhibit or reduce participation of students who pay the full price for their lunches. A study of NSLP participation in North Carolina schools tested this possibility and concluded that

> "* * * the proportion of students participating who pay full price for their lunches is not affected by the number of students receiving lunches free of charge or at reduced prices." 2/

As a further test, we compared the participation rates of regular-price students with those of students eligible for free or reduced-price lunches. Our analysis, based on fiscal year 1973 data for the 50 States and the District of Columbia, indicates that the participation rates of the two categories are, for practical purposes, independent of one another. This finding, because it is derived from statewide totals, should not be considered conclusive until validated by further research. It does, however, suggest that regular-price students and students eligible for free or reduced-price lunches may respond differently to a particular set of participation stimuli--a feature to be considered in further studies of NSLP participation.

INFLUENCE OF PRICE

Information relating lunch prices to participation levels has significance from a policy viewpoint since the regular price is set by local school officials and

---

1/U.S. General Accounting Office,"Progress and Problems in Achieving Objectives of School Lunch Program," B-178564, Wash., D.C., June 1973.

2/Nicholson, R.H., Some Economic Aspects of the National School Lunch Program in North Carolina, Economics Information Report No. 32, North Carolina State University, Raleigh, N.C., July 1973.

administrators (possibly estimated as the price required to make up the annual difference between the cost of preparing meals and the subsidies of Federal, State, and local governments). These price decisions affect the cost of NSLP lunches to parents and children in individual schools and collectively influence the scope of the program's benefits on a national basis.

FNS administrative reports and studies long have documented that agency's concern for increasing and for accurately forecasting the numbers of program participants. Published and unpublished reports have identified factors which have been viewed as being associated with participation and as being of use for forecasting numbers of participants. In considering research directed toward identifying the relative importance of factors which explain participation, the emphasis has been directed toward those factors over which the school has substantial degrees of control, e.g., prices and costs of lunches, and also to those which could be meaningfully quantified.

Parents aware of relative prices

We mentioned earlier that nonparticipants normally obtain lunch from alternative food sources. Although such meals are usually nutritionally inferior to the type A lunch, they still have a cost. The parents of these children, whether providing food from home or funds for the purchase of food at school, are paying for the child's lunch. In this regard, it is not the price of the NSLP lunch per se, but rather its price relative to alternatives that affects student participation (i.e., differences in preference are expressed on the market in monetary terms).

In order to compare NSLP lunch prices with a readily available alternative, the authors of a 1973 study 1/ used as a test instrument a sample of 4 sack lunches which met the minimum nutritional requirements specified for NSLP. (See table 7.1 on the following page.) The food cost in these

---

1/West, D. A. and R. A. Hoppe, Pricing and Participation Rates in the National School Lunch Programs in Washington Public School Districts, Washington Agricultural Experiment Station, Washington State University, Oct. 1973.

samples ranged from 26 to 41 cents, roughly comparable to NSLP's prevailing price of 25 to 40 cents. 1/

Table 7.1

Sample Sack Lunches Used In Washington State Study (1970 prices) (note a)

Number 1	Price (cents)	Number 2	Price (cents)
2 slices of bread	3.65	2 slices of bread	3.65
2 oz. bologna	13.87	2 oz. salami	16.33
1 tablespoon butter	2.68	1 tablespoon butter	2.68
Carrots, 3/16 lb.	3.28	Cucumbers, 3/16 lb.	5.15
Banana, 3/16 lb.	2.94	Grapes, 3/16 lb.	8.15
1/2 pint of milk	4.94	1/2 pint of milk	4.94
Total	31.36	Total	40.90
Number 3		**Number 4**	
2 slices of bread	3.65	2 slices of bread	3.65
2 oz. liver sausage	13.56	2 oz. peanut butter	7.88
1 tablespoon butter	2.68	1 tablespoon butter	2.68
Celery, 3/16 lb.	3.74	Celery, 3/16 lb.	3.74
Apple, 3/16 lb.	4.06	Banana, 3/16 lb.	2.94
1/2 pint of milk	4.94	1/2 pint of milk	4.94
Total	32.63	Total	25.83

a/Each lunch conforms to NSLP's type A pattern requirement and is designed to provide one-third of an elementary school child's RDA. Source: Pricing and Participation Rates in the National School Lunch Programs in Washington Public School Districts, Washington State University, Oct. 1973

Mothers of elementary school children were aware of the sack lunch cost. In school districts charging 30 to 35 cents for the NSLP lunch, over 75 percent of the mothers interviewed believed the price was reasonable; less than a third said they could provide a sack lunch for less money. In districts

---

1/The sack lunches, designed as a test instrument, should not be considered representative of the cost or content of sack lunches eaten by schoolchildren. The samples are presented here to illustrate flexibility in the type A pattern, to show that a sack lunch style meal can provide one-third of the schoolchild's RDA.

where the NSLP lunch price was 40 cents, only 40 percent of the respondents believed the price was reasonable; 70 percent said they could provide a sack lunch at less cost. This finding (that parents believed the sack lunch less costly than NSLP lunches in the higher priced districts) suggests that the NSLP meal competes, on a price basis, with the sack lunch.

Price-participation relationships provide a weak forecasting tool

The relationship between prices and the rates of daily participation which existed in the United States during fiscal year 1973 are shown in table 7.2. A diagonal pattern is formed by indicating the number of States associated with each regular-price and participation level. In general, this pattern indicates that the higher a child's payment, the lower the level of participation.

Table 7.2

Number of States Participating in NSLP, by Regular Prices Charged and Daily Participation Rates, Fiscal Year 1973 (note a)

Average child's payment (cents) (note b)	Rate of daily participation, percent of regular-price enrollment 0-15	16-20	21-25	26-30	31-35	36-40	41-45	46-50	51-55	56-60	62-65	66-70	71-75	Total number States (note c)
60	-	-	-	-	-	1	-	-	-	-	-	-	-	1
56-60	-	-	1	-	-	1	1	-	-	-	-	-	-	3
51-55	-	1	-	-	-	2	-	-	-	-	-	-	-	3
46-50	-	-	-	2	1	-	-	-	1	1	-	-	-	5
41-45	-	-	1	-	1	2	1	2	1	-	3	1	-	12
36-40	-	-	-	1	-	-	1	1	2	1	2	1	2	11
31-35	-	-	-	-	-	-	2	3	2	3	1	1	-	12
26-30	-	-	-	-	-	-	-	-	-	-	2	-	1	3
26	-	-	-	-	-	-	-	-	-	-	-	1	-	1
Total no. States (note b)	0	1	2	3	2	6	5	6	6	5	8	4	3	51

a/Tabular figures indicate the number of States whose average price is between the amounts listed in the left-hand column and whose participation rate for regular-price students is between the percentages indicated at the top.

b/Determined by dividing State-reported figures on total lunches served--less total free and reduced-price lunches served--into total children's payments. This slightly overstates the lunch prices since a small but unknown, portion of the children's payments are for reduced-price lunches.

c/Includes the District of Columbia.

USDA's Comprehensive Study of the Child Nutrition Program informed the Congress that variations in participation depend significantly upon the relationship of price to participation. The study went on to describe a mathematical relationship between price and participation which was used to compare a series of program alternatives. This relationship has since been used in congressional debate on school lunch legislation.

We believe the specific relationship reported by the study would be technically correct only for NSLP lunches priced in the 20 to 35 cents range. 1/ Since NSLP prices were considerably above that range in fiscal year 1974--and remain so today--the study's values should not be used for projecting participation levels. More importantly, we believe that the association between price and participation levels is an extremely weak forecasting tool.

To illustrate this point, figure 7.1 on the next page shows the linear relationship between prices and the participation rates of regular-price students which existed in fiscal year 1973. The straight line drawn there is the one that best fits a "scatter" of points, each point representing the average price-participation levels of one State (computed from FNS program data). 2/, 3/

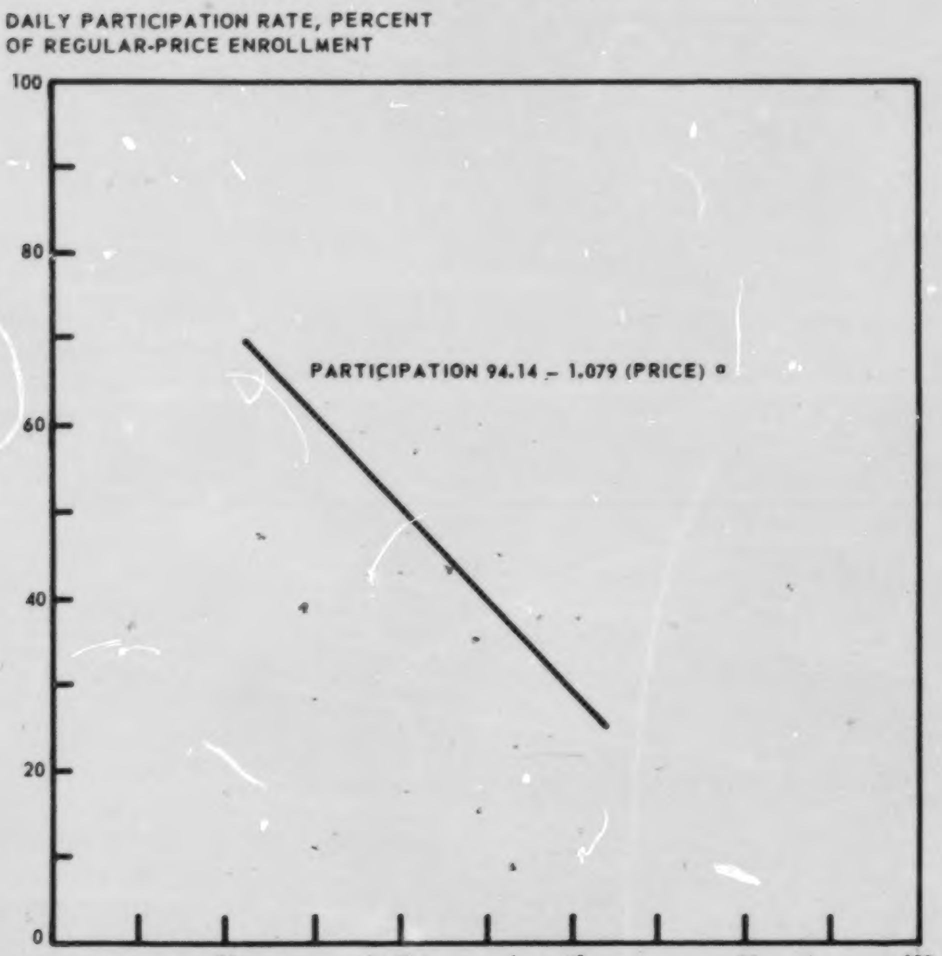
1/All the research on price-participation relationships that we found was either directly conducted, or sponsored, by USDA. In each instance, the work indicated a high level of professional competence. The Comprehensive Study, however, misreported the research findings by stating, as a general rule, that "paying students respond by reducing participation 3 to 6 percent for every 10 percent increase in prices charged." Such a relationship (price elasticity in economic terms) is specific to a particular price level. At prices of 35 cents and above, the elasticity is markedly different.

2/USDA, FNS, Fiscal Year 1973 Statistics and Historical Tables, Wash., D.C., 1974

3/USDA, FNS, "Estimates of Needy Children in National School Lunch Program Schools Eligible for and Reached with Free or Reduced Price Lunches," Survey Reports for Oct. 1972 and Mar. 1973.

FIGURE 7.1

PRICE-PARTICIPATION RELATIONSHIPS FOR REGULAR-PRICE STUDENTS UNITED STATES FISCAL YEAR 1973



[a] The price coefficient (–1.079) has a standard error equal to 0.193, indicating that the coefficient is statistically highly significant.

The value of the squared correlation coefficient, R^2, is 0.389, indicating that price alone explains about 39 percent of the variation in the participation rates.

Although differences in methodology preclude precise comparisons, the price-participation relationships shown on the previous page appear to be in substantial agreement with the findings of three studies [1],[2],[3] cited in USDA's 1974 report. The line has a downward slope (determined by the equation's price coefficient, -1.079) and indicates that a 5-cent price increase is associated with an "expected" [4] decline of about 5.4 percentage points in the daily participation rate. Price, however, explains only 38.9 percent of the variation in State participation levels (i.e., an interpretation of the squared correlation coefficient). In a statistical sense these findings indicate that price increases tend to depress participation rates, but that other variables--accounting for 61.1 percent of the variation in participation--have a dominant influence on the magnitude and direction of such shifts.

The implications of these findings are clear. Price-participation forecasts rest on the assumption that "all other things remain constant." This assumption is tenuous, as evidenced by the increases in both price and participation rates which occurred between fiscal years 1972 and 1973.

BETTER INFORMATION NEEDED TO ASSIST DECISIONMAKERS

In view of the above discussion, and because participation studies have concentrated on the impact of "price," decisionmakers have very little quantitative support for estimating the participation impacts of various policy alternatives. These limitations can be summarized as follows:

---

[1] See footnote 1, p. 93.

[2] USDA, Economic Research Service, "Factors Affecting Participation in the School Lunch Program," Unpublished Working Paper, June 1971.

[3] Braley, G. A. and P. E. Nelson, "Effect of a Controlled Price Increase on School Lunch Participation: Pittsburgh 1973," American Journal of Agricultural Economics, Feb. 1975.

[4] The standard error of the price coefficient introduces variation about the "expected value," with a 99-percent likelihood that declines will be in the range of from 3.1 to 7.6 percentage points.

--Price-participation provides an extremely weak forecasting tool.

--The relative importance (rank) of the individual factors affecting participation has not been fully determined.

--The "recognized" factors affecting participation have not been shown to account for the major variations in program participation.

Multifactor relationships

Since participation rates are a primary measure of program performance, we believe that methods of improving and better integrating the results of participation studies need to be examined closely. By combining several of the factors affecting participation, it may be possible to develop a cause-effect relationship which would "explain" most of the major reasons why children do or do not participate in NSLP.

To illustrate the basic features of a multifactor relationship, we added one additonal factor, "per capita income," to the price-participation relationship described earlier. 1/ The result is shown as a mathematical equation in table 7.3 on the following page.

1/Although "per capita income" serves to illustrate the development of a multifactor relationship, it is very suspect in an economic context. Specifically, average per capita income for each State includes the incomes of households without children, with children who pay fully or receive free/reduced-price lunches, retirees, etc. Thus, even though the relationship shows a high level of statistical importance, it should not be given too much emphasis in an economic sense. A more meaningful factor would be an income series which is more closely representative of the "household income" of regular-price students; however, we have yet to find such data. The results illustrated by this price-per-capita-income example show a need for further research in developing such a variable. ERS has stated that it joins us in recognizing the importance of a well-specified income variable for improving forecast models.

Table 7.3

Regular-Price Participation as a Function of Per Capita Income and Price, United States, Fiscal Year 1973

Regression equation:

$$r = 121.8 - 0.5862p - 10.12i + e$$

where: r = daily participation rate expressed as a percent of regular-price enrollment

p = average regular price charged for the NSLP lunch (cents)

i = per capita income (in thousands of dollars)

e = error term

Notes: The value of the squared correlation coefficient, R2, is 0.557, indicating that the combination of price and income explains about 55.7 percent of the variation between State participation rates, or almost 17 percent more than price alone.

The coefficients for price and income have standard errors equal to 0.2022 and 2.366, respectively. Each indicates a high degree of statistical significance. The value indicating correlation between price and income is 0.5695.

Both price and per capita income are statistically important factors in "explaining" variations in participation. Their coefficients are negative (-0.5862 and -10.12, respectively), indicating that an increase in either would tend to lower participaton rates. Furthermore:

--If price is held constant, a $1,000 increase in per capita income would be expected to lower the rate of participation by about 10.1 percentage points. Alternatively, if per capita income is held constant, a 5-cent price increase would be expected to lower the rate of participation by about 2.9 percentage points. In terms of their impact on participation, a $1,000 increase in per capita income is equivalent to a 17.3-cent increase in the price charged for an NSLP lunch. 1/

--Price and per capita income, taken together, account for about 55.7 percent of the variation in State participation rates. 2/ Although this value is low for forecasting purposes, it is considerably higher than the value obtained in the analysis of price relationships.

Of course, price and per capita income are not the only factors that affect participation. The relationship could be expanded to include the influence of a number of factors--both quantitative and qualitative. 3/ Appropriately coordinated, we believe that the use of multifactor relationships in future studies of NSLP participation offers the best possibility for developing a functional understanding of the nature and importance of the major factors affecting participation and, quite possibly, a reliable basis for estimating the participation impacts of various program modifications.

1/Changes in price and per capita income, measured in 1973 constant dollars (i.e., annual increases in the cost of living do not automatically increase per capita income as used in the equation).

2/Taken independently, price explained 38.9 percent of the variation in participation and per capita income explained 48.0 percent. The combined relationship, as indicated by the 55.7 percent reported above, is not usually cumulative. This indicates the "sharing" of a certain participation influence between price and per capita income.

3/USDA's 1971 study (see footnote 2, p. 98) combined "price" with several qualitative factors to determine their effects on NSLP participation. Although the study did not develop a reliable forecasting relationship, it did determine that the following qualitative factors affected participation: (1) the presence of a la carte foods, (2) the presence of vending machines, and (3) whether or not students were permitted to leave campus at lunchtime.

Regular-price participation declines as per capita income advances

In describing price-participation relationships, we indicated that about 39 percent of the variation between State participation levels was explained by differences in the price of the NSLP lunch. "Per capita income," however, accounted for 48 percent of the fluctuation in regular-price participation. In every respect, per capita income was statistically a more important variable than price in regard to NSLP participation.

As a normal condition, the participation of regular-price students would be expected to increase with income. This was not the case. Our analysis revealed that as per capita income advanced, student participation declined. In economic terms, the NSLP lunch exhibited the characteristics of an "inferior good."

The income-participation relationship, because it is derived from statewide totals and because per capita income may not be representative of the "household income" of regular-price students, should not be considered in formulating NSLP policies unless substantiated by further research. (See footnote 1, p. 99.) However, it does suggest the possibility that as "real income" increases children are provided greater funds and therefore select their noon meal from a broader list of alternatives--including some which may cost more than the type A lunch. If this is true, NSLP is not "pricing-out" students; it is merely losing the ability to use lower prices as an incentive for participation. Our "example" would provide two very important conclusions regarding program participation, namely that:

1. Increases in "real income" (standard of living) will tend to reduce the participation of regular-price students even if the "real price" of the NSLP lunch is held constant. For example, the practice of increasing Federal subsidies to compensate for advances in the Consumer Price Index should not be expected to sustain the current participation rates of regular-price students.

2. Attempts to sustain participation rates in the regular-price program should concentrate on noneconomic aspects of the school lunch program (e.g., social climate of the cafeteria and the selection, preparation, and presentation of program lunches).

Matching resources with needs

A discussion of NSLP participation should also consider that

- --the program's objective is to safeguard health,
- --children have differing needs for nutritional assistance, and
- --program resources are limited.

The trade-off between differentially subsidizing the lunches of economically needy children and applying the same resources toward an increased subsidy for regular-price lunches is obvious. The need to provide nutritional assistance for economically needy children (e.g., free and reduced-price lunches) is considered to be more important than the need to increase regular-price participation. In effect, two things should be noted:

- --Program effectiveness depends more on satisfying recognized needs than on "total" sales.

- --Only as requirements for nutritional assistance are identified can the effectiveness of participation policies be judged and available resources matched with needs.

By considering the NSLP enrollment as being grouped into four participation categories--nonparticipating students and regular, reduced-price, and free lunch participants--it is apparent that a participation change in one category necessarily affects one or more of the others. Present studies of NSLP participation, by confining their observations to a single participation category, generally exclude these impacts. They do not, in general, identify the full impact of a participation change.

A Pittsburgh study 1/ analyzed the effects of a price increase on student movements between participation categories. The study reported that

- --about one-fifth of the "dropouts" from the regular-price program joined the free lunch program (implying that at lower prices some of those eligible for free

---

1/See footnote 3, p. 98.

lunches preferred to participate as regular-price students); and

- --four-fifths of the students ceasing to purchase type A lunches did not transfer into the free lunch category (implying that many children shifted to alternative food sources or went without lunch). 1/

The increase in free lunch participation is an important cost consideration in that Federal reimbursements may likewise increase (refer to ch. 10). However, in regard to the program's objective of safeguarding health, a more crucial question is: What happens to students that leave NSLP? For example:

- --What do program "dropouts" substitute for the NSLP lunch? And how does the alternative compare with the price and nutritional content of the NSLP lunch?
- --Do the reasons which precipitate a decline in participation affect the selection of alternative food sources (e.g., does a participation decline due to the availability of competitive foods have the same nutritional impact as a decline caused by price increases)?
- --Is the process of a decline in participation reversible? That is, by reversing the conditions causing a decline, would NSLP reattract the same "dropouts" into the program?

Further research is needed to develop a "unified explanation" for the causes and impacts of changes in NSLP participation rates. We believe that such research, properly coordinated, should enable USDA to better estimate and prepare for the impact that various program changes would have, and to improve the direction and effectiveness of outreach efforts.

RECOMMENDATIONS TO THE SECRETARY OF AGRICULTURE

Further effort is needed to develop a "unified explanation" for the causes and impacts of changes in the program's

---

1/Since Pittsburgh schools did not offer a reduced-price lunch prior to the price increase, the effects on that category of participation were not analyzed.

participation rates. We recommend that the Secretary of Agriculture:

--Improve the accuracy of participation forecasts and determine the relative importance of individual factors (including price) which affect participation.

--Determine how changes in school lunch program participation affect the magnitude and characteristics of unmet nutritional needs in the nonparticipant population.

AGENCY COMMENTS

USDA agreed that there is a need to prioritize the factors affecting participation and to determine the extent to which they individually and collectively influence participation. (See app. I.) It indicated that such work has been an ongoing objective of the Food and Nutrition Service.

USDA did not address our recommendation about determining the influence of participation changes on the unmet nutritional needs of the nonparticipant population.

PART IV

PROGRAM COSTS

In 1975 the School Lunch Program's operating expenses rose to about $3.8 billion, a 73-percent increase over the $2.2 billion of fiscal year 1970. In this same period the Federal share of program expense increased from about $0.6 billion to $1.7 billion.

Although the Federal Government shoulders the largest portion of program expense, State and local governments have the greatest control over operating efficiencies. As pointed out in an Urban Institute report, 1/ the State governments are in a strategic, and in some ways unique, position to influence some of the factors that increase cost growth within NSLP. State government is especially able to improve program performance in areas where either the Federal Government or the localities cannot or will not act. States have the power to prescribe regulations, implement program incentives, and to some extent, provide services and resources for local use. Although the State's domain is circumscribed by Federal and local prerogatives, State governments, by their actions or inaction, have an important impact on program costs through

--administering local functions such as education and welfare services and

--disbursing NSLP funds in a differential manner.

Because of the rapid increase in NSLP expenses and because an increasing proportion of this expense is supported by Federal funds, we thought a review of selected program areas might provide insights for future savings. Chapters 8 through 10 describe, in turn, the impact on Federal funding as influenced by USDA food distributions; the dominant factors in cost growth; and trends in Federal, State, and local financing.

1/Young, D., and S. Nokkeo, Response of State Government to an Urban Problem: The School Lunch Program in New Jersey, The Urban Institute, Wash., D.C., June 1970.

CHAPTER 8

USDA FOOD DISTRIBUTIONS PROVIDE COST SAVINGS

The National School Lunch Program has provided an important outlet for foods acquired under USDA price stabilization and surplus removal actions (see table 8.1 below). Federal funds, principally from agricultural programs, have paid for the purchase of commodities and the cost of transporting them to the States. Once at the designated warehouse or car-side location, the State or recipient agency has borne the final distribution expense.

Table 8.1

USDA Commodity Distributions to NSLP, Fiscal Year 1971-75 (note a)

Fiscal year	Value of commodity distributions (note b)			Share of NSLP food costs
	Sec. 6	Secs. 32 & 416	Total	
	------------(millions)-----------			
1971	$64.3	$213.0	$277.3	19.7%
1972	64.0	248.0	c/312.1	20.0
1973	59.5	200.7	d/260.2	15.6
1974	67.3	248.8	316.1	16.4
1975 (est.)	63.7	357.6	e/421.3	18.9

a/Source: FNS/Program Reporting Staff publications.

b/Value is cost to Federal Government. Commodities are obtained by the Secretary of Agriculture with funds appropriated by the National School Lunch Act (section 6 funds); with funds arising from tariffs on imports (section 32 funds); and from the Commodity Credit Corporation's purchase of surplus foods (section 416 funds).

c/Difference in total due to rounding.

d/Excludes $70.8 million cash in lieu of commodities to schools.

e/Excludes $5.2 million cash in lieu of commodities authorized for NSLP schools in the State of Kansas.

NSLP, in 1970, accounted for less than half of USDA's food distribution effort. But as the Nation's agricultural policies reduced the need for surplus food outlets, alternative means were employed to support other Federal programs (e.g., food distribution to needy families was replaced by the Food Stamp Program) and NSLP became nearly the total focus of USDA's food distribution activities. The Congress increased the level of commodity support for NSLP and authorized the Secretary of Agriculture, in some instances, to purchase nonsurplus foods for distribution to schools. In 1974, USDA reported to the Congress that

> "* * * the Department will also be looking into whether the continuation of * * * [the current food distribution program] * * * is either feasible or necessary in view of the shifts in U.S. farm policy, the phaseout of the food distribution program for needy families, and the fact that most of the food for the child nutrition programs is already being purchased locally. The Department believes that a single cash payment, increased to reflect past commodity support, may be preferable." 1/

This statement raised two major issues. The first, an issue involving future agricultural policies and the abandonment of a proven commodity outlet, is beyond the scope of this report. The second issue, cash versus commodity support, is addressed in the balance of this chapter.

DETERMINING THE COST SAVINGS OF USDA FOOD DISTRIBUTIONS

In present program reporting, commodities are valued as the sum of procurement cost and the cost of delivery to the States. For comparing commodity distributions against a cash alternative, it is necessary to consider the cost of food as delivered to a school--a cost which includes administrative and intrastate distribution expenses. 2/

1/USDA, Comprehensive Study of the Child Nutrition Programs, Committee Print of the Committee on Agriculture and Forestry, U.S. Senate, Wash., D.C., Sept. 1974.

2/Report of the Commission on Government Procurement, Vol. 3, Dec. 1972.

Cost of USDA foods increased by intrastate distribution expenses

A study to determine the average cost for distributing commodities at the State and local level and the apportionment of those costs among participating agencies was completed in April of 1974. 1/

This study, using 1973 data, determined that:

--Average cost for intrastate distribution of commodities was 53 hundredths of a cent per school lunch--in aggregate, about 6 percent of the cost of providing commodities.

--If food distribution to needy families was eliminated with an assumed reduction in total administration costs of 25 percent, intrastate distribution costs would have increased to 57/100 of a cent per lunch--an 8% gain.

--The major components of intrastate distribution expense were: transportation (56.6%), warehousing (22.6%), and administration (20.8%).

--Schools paid 61 percent of local distribution costs; States contributed the remaining 39 percent. Twenty-eight States made an assessment against recipient schools.

USDA foods less expensive than schools' open market purchases

In February 1975, USDA's Economic Research Service (ERS) published "Costs of Foods Purchased by USDA and Local School Systems, 1973/74." 2/ This study determined the cost for a uniform "market basket" of 15 foods as purchased during 1973-74 school year at prices paid by:

1/A. T. Kearney and Co. Inc., Average Commodity Distribution Costs for the School Lunch Program, conducted for FNS, USDA, Apr. 1974 (revised June 1974).

2/USDA, Economic Research Service, Costs of Foods Purchased by USDA and Local School Systems, 1973/74, ERS-592, Wash., D.C., Feb. 1975.

- --the USDA's commodity program,
- --the largest school systems (over 25,000 students),
- --the smallest school systems (under 2,500 students), and
- --all school systems combined.

The study's "market basket" consisted of foods with substantial usage which had been purchased between July 1973 and April 1974 by school systems and USDA. On the open market, schools purchased these foods through the following types of sellers: processors (canners, freezers, packers); wholesalers; county or State purchasing agencies (which buy all items for the schools); and retail merchants. The simple average price paid for each pound of "market basket" foods purchased from these sources is shown below:

Table 8.2

Average Prices Paid by School Systems for Foods By Source of Purchase, July 1973-April 1974 (note a)

Food	Processor	Wholesaler	County/State purchasing agency	Retailer
	----------(dollars per pound)--------			
Turkey	0.846	0.762	-	0.639
Chicken	.563	.614	0.480	.568
Frankfurters (all meat)	.850	.889	.437	.902
Ground beef (20% fat)	.998	1.009	.861	1.006
Cheese, processed	.990	1.007	.954	1.078
Flour, all purpose	.165	.145	-	.195
Margarine	-	.410	-	.676
Rice	-	.356	-	.430
Corn, canned	.179	.192	.159	.207
Tomatoes, canned	.229	.214	.237	.217
Peas, canned	.172	.190	.202	.216
Peaches, canned	-	.252	.363	.266
Pears, canned	.236	.274	.238	.287
Pineapple, canned	.248	.251	.276	.246
Potatoes, frozen french fry	-	.239	.207	.199

a/Source: Costs of Foods Purchased by USDA and Local School Systems, 1973/74, USDA Pub. ERS-592.

The county/State purchasing agency had the lowest price for five foods, with a marked advantage for chicken, frankfurters, and ground beef. Compared with the most expensive source, their price was 13.4 cents a pound lower for chicken, 14.8 cents lower for ground beef, and 46.5 cents lower for frankfurters. Since these foods are relatively high in cost and are excellent sources of protein, the price differences are especially noteworthy.

Prices showed regional differences throughout the Nation at all levels of distribution--retail, wholesale, and processor. However, for each of the 15 food items, the average price per pound paid by the largest school systems (25,000 or more students) was consistently lower than the price paid by the smallest school systems (fewer than 2,500 students).

During the study period, USDA purchased about 441.5 million pounds of the 15 "market basket" foods. By weight, this amounted to about 40.3 percent of all USDA foods donated to schools in fiscal year 1974. The overall procurement cost of these foods was easily determined. However, since schools' open market purchases included delivery to the feeding site and administrative expenses, a comparable cost for USDA foods required that USDA's procurement costs be adjusted to include a pro rata share of Federal administrative and intrastate expenses (obtained from the A. T. Kearney study described earlier). The resulting USDA food costs, expressed on a per lunch basis, are shown on the following page:

Table 8.3

USDA Food Cost Per Lunch-- Fiscal Year 1974 (note a)

Component	Food cost per lunch (cents)
Food procurement	7.65
Federal administrative expense	.15
Intrastate costs:	
Warehousing	.12
Transportation	.30
Administrative	.11
Total	8.33

a/According to the Kearney study, food cost per NSLP lunch would rise to 8.37 cents if the Needy Persons Program were eliminated. Since that program is being phased out, the higher figure will be used throughout subsequent sections of this chapter for comparative purpose. Source: Costs of Foods Purchased by USDA and Local School Systems, 1973/74, USDA Pub. ERS-592.

Cost comparisons between foods purchased by USDA (according to its published specifications) and the cost of the same foods (matched as closely as possible) purchased by 150 school systems are shown below: 1/

Table 8.4

Comparison of Food Costs: USDA and Open Market

	Food cost per lunch (cents)	Index
USDA-purchased foods	8.37	100.0
Open Market Purchases:		
Average U.S. public school	8.93	106.7
Largest schools	8.35	99.8
Smallest schools	9.86	117.8

1/The "as closely as possible concept" still leaves a substantial margin for differences. For example, USDA specifications call for net drained weights for canned foods and for can or container size. In the open market, few school systems specify drained weights. To the extent that USDA drained weights vary from market practices, the respective prices will probably reflect this difference.

Thus, ERS reported:

> "The size of the differences paid for food by the school systems and USDA and their statistical significance provides some quantitative support for making program policy decisions. Estimates for the total 1973/74 school lunch program may be made in terms of food costs per lunch * * * with the recognition that the results for the 15 foods are assumed typical of results that would be found if all commodities were studied."

Prices reported by school systems with 25,000 students or more are essentially the same as those paid by USDA. However, the smallest school systems paid prices averaging 17.8 percent higher than those paid by USDA; and the average U.S. public school paid an average price 6.7 percent higher. Assuming these proportions are representative of 1975's commodity program, equivalent cash support would have increased program expenses by $23.2 million.

DIFFERING OPINIONS ON CASH IN LIEU OF COMMODITIES

In January 1975, the Senate Select Committee on Nutrition and Human Needs asked the Nation's State School Food Service Directors for their preferences between cash and commodities. 1/ Of the 36 respondents (1 undecided), 22 preferred commodities, 8 preferred cash, and 5 wanted an option for individual school districts. Those favoring commodities frequently noted inconveniences, but felt the cost savings of USDA foods outweighed all other considerations. Their comments included:

> "Discontinuing the commodity program is not a reasonable alternative * * * food service directors should have some input into types and kinds of food. Improvements are needed in information regarding delivery and also in frequency and quantity of delivery."

> "If the commodity program were to end, at least 15 cents per meal would be needed to offset the loss * * * The use of bids with standards of quality presently found in USDA

1/U.S. Senate, Select Committee on Nutrition and Human Needs, School Food Program Needs--1975, Government Printing Office, Wash., D.C., 1975.

donated foods is impossible in 95% of South Dakota Schools."

"We heartily endorse the continuance of the commodity program * * * we are now geared to effectively administer the program with warehouses and trucking equipment."

"If the commodity program were discontinued * * * no school program, other than some of the major cities' programs, have the technical know-how or volume to obtain the quality and quantity per dollar that the USDA can."

On the other hand, Kansas deactivated its intrastate commodity distribution network and in fiscal year 1975 began a program of full cash support in lieu of commodities. After a half-year's experience Kansas' Director of School Food Service indicated a strong preference for cash in lieu of commodities. Her reasons included:

1. Less paperwork and time are involved in inventory controls.

2. More variety in menus is possible.

3. There is better planning for utilization of facilities, particularly storage facilities. Purchases and deliveries are scheduled for convenience and needs.

4. There is a savings of actual cash formerly spent for freight and storage charges on commodities.

5. More food money is available to negotiate good buys on food items.

6. Cash does not have 'price support' effect which raises prices to other consumers. 1/

Although early experience in Kansas shows the convenience of cash, we do not know of any study which has evaluated the

---

1/George, I., Testimony before the Senate Subcommittee on Agricultural Research and General Legislation, Apr. 1975. (Adverse experiences with the commodity distribution program are noted by Kansas school food service directors in ch. 5 of this report.)

impact of that State's changeover, either in terms of student participation or in terms of total program costs. We believe that a study of the Kansas changeover can provide much useful information concerning the commodity program's influence on various aspects of NSLP. However, because of Kansas' accessibility to the Nation's agricultural producers, we are not sure that a comparison of food costs in that State will be representative of the Nation as a whole. In our opinion, USDA's "market basket" comparison (described earlier in this chapter) provides a better technique for appraising the cost trade-offs between cash and commodity support for NSLP overall.

IMPACT OF SUSPENDING COMMODITY PROGRAM

Based on the facts and impressions described in this chapter, ending commodity distributions to NSLP schools may have the following impacts:

--The possible disestablishment of a proven commodity outlet, including the State facilities and administrative organization essential to its operation.

--Increased NSLP food costs. Comparable foods, purchased on the open market, are estimated by ERS to cost about 6.7 percent more than USDA commodities--an increase which would have amounted to $28.2 million in FY 1975. While this "6.7 percent" value represents the average increase, table 8.4 shows sizeable differences between the procurement economies of large and small school systems. Prices reported in large districts are essentially the same as those paid by USDA. The smallest systems paid prices 17.8 percent higher. In this context, commodity distributions are shown to provide greatest benefits to schools with high food costs. A fixed-rate cash assistance program inverts these benefits--schools with high food costs receive the least assistance.

The precise extent of program impact may depend on the actions of the individual State governments. As concluded by the ERS study:

> "Given the size of food purchases involved (about $1.8 billion annually), a potential exists for saving the

> Nation's schools several hundred million dollars by more effective procurement practices." 1/

State agencies, by providing services such as volume purchasing of foods and equipment and regional contracting for storage and transportation services, might be able to improve the food service economics of small and medium-sized school districts. These actions could, at once, provide significant savings in program food costs and enhance a USDA interface for intermittent sales of agricultural products.

1/See footnote 2, p. 10>

CHAPTER 9

FACTORS AFFECTING COST GROWTH

A 1974 USDA study of regional cost variations in the National Student Lunch Program reported that 1/

--The Northwestern and Western States had the highest per-lunch costs; the Southeastern States had the lowest.

--For total food costs, the Northeast was highest, the Southwest lowest.

--Labor costs were highest in the Northeast and lowest in the Southeast.

--Cash outlays for other than food and labor showed the greatest variation, with the West-Central and Western Regions highest, the Northeastern the lowest.

--Synthetic cost analysis of data from 30 cities indicated food costs varied little between major cities except for Anchorage and Honolulu, where costs were about one-fifth higher.

--Some variation in costs among States and regions may be due to differences in accounting by the State reporting agency.

--Characteristics of the program are heavily influenced by State operating policy. For example, management analysis of Hawaii for fiscal year 1973 showed program management was centralized, with good accounting, some centralized purchasing, and high overall efficiency.

While the study found sizeable cost variations between States and regions, differences in accounting methods prevented it from determining any meaningful association between costs and NSLP's operating efficiency. Since that time USDA has tested a uniform accounting manual for school food service systems and has encouraged the adoption of this manual throughout NSLP. If USDA's manual is accorded widespread

---

1/USDA, Comprehensive Study of the Child Nutrition Programs, Committee Print of the Committee on Agriculture and Forestry, U.S. Senate, Wash., D.C., Sept. 1974.

use, a more uniform data base will be available for program accountability, planning, and evaluation.

GROWTH IN COST OF PRODUCING AN NSLP LUNCH

Cost growth for NSLP overall is shown in table 9.1 below. For fiscal years 1970 through 1975, the table shows the number of meals served and the total program cost--including commodity donations. On the right-hand side of the table, these costs are deflated to 1970 dollars and then compared as an "adjusted cost per lunch."

Table 9.1

NSLP Cost Growth--Fiscal Year 1970-75

				Adjusted cost (Fiscal year 1970 constant dollars)	
Fiscal Year	Meals served	Total cost actual (note a)	CPI food-away-from-home index (note b)	Total cost	Cost per lunch
	---(millions)----			(millions)	(cents)
1970	3,565.1	$2,208.0	100.0	$2,208.0	61.93
1971	3,848.3	2,427.9	105.9	2,292.6	59.57
1972	3,972.1	2,712.1	110.5	2,454.4	61.79
1973	4,008.8	2,984.5	115.9	2,575.1	64.24
1974	3,998.9	3,347.6	130.4	2,567.2	64.20
1975(est.)	4,076.8	3,751.0	144.9	2,588.7	63.50

a/Includes value of donated commodities.

b/Adjusted to fiscal year 1970 (Sept.-June) = 100.0.

During this period, the number of meals served increased by approximately 14 percent; program costs (including commodity donations) increased by 70 percent. When deflated by the Consumer Price Index (CPI) (the escalator used to determine Federal reimbursement), the adjusted cost of producing an NSLP lunch increased from 61.93 to about 63.50 cents.

Component costs

Table 9.2 presents the cost of the various components of a school lunch, for fiscal years 1970 to 1974:

Table 9.2

Component Costs of NSLP Lunch--Fiscal Year 1970-74

Fiscal year	Local food purchases	Federally donated commodities	Labor	Other cost expenditures	Donated goods & services	Total per-lunch cost
	(cents)					
1970	28.36	7.44	19.68	4.45	2.00	61.93
1971	29.43	7.21	20.42	4.63	1.40	63.09
1972	31.49	7.86	22.09	5.56	1.28	68.28
1973	35.13	6.49	24.29	6.64	1.90	74.45
1974	40.39	7.90	26.26	6.92	2.24	83.71
Annual growth rate %	9.2	1.5	7.5	11.7	2.9	7.8

The average annual growth of the total "per-lunch" cost, at 7.8 percent, outpaced the CPI (food away from home) for the 1970-74 period--the latter had an annual growth rate of about 6.9 percent. The largest annual increase was for "other cash expenditures" (11.7 percent) followed by increases in local food purchases (9.2 percent) and labor (7.5 percent). Donated goods and services and federally donated commodities increased only slightly--2.9 percent and 1.5 percent, respectively.

To determine the dominant factors contributing to cost growth in NSLP, we increased fiscal year 1970 meal costs to reflect changes in the CPI and then compared these "adjusted costs" with the actual costs incurred in fiscal year 1974, as shown in the table on the next page.

Table 9.3

Highlighting the Factors Affecting Cost Growth of NSLP Lunch (Meal cost for Fiscal Year 1970 adjusted to Fiscal Year 1974 prices and compared with actual Fiscal Year 1974 costs) (note a)

	Local food purchases	Federally donated commodities	Labor	Other cash expenditures	Donated goods & services	Total per-lunch cost
	(cents)					
Actual cost	40.39	7.90	26.26	6.92	2.24	83.71
Adjusted cost (note b)	36.98	9.70	25.67	5.80	2.61	80.76
Difference (note c)	3.41	-1.80	0.59	1.12	-0.37	2.95

a/Since the CPI's "food away from home" component measures changes in consumer purchasing power rather than changes in the individual component costs, the differences shown are not precise measures of cost growth. In relative size, however, we believe these differences serve to highlight the cost categories most responsible for escalations in meal cost.

b/FY 1970 meal cost escalated by CPI (food away from home) to fiscal year 1974 prices.

c/Each 1-cent difference in cost represents about $40 million in program costs (based on the nearly 4 billion meals served in fiscal year 1974).

Between fiscal years 1970 and 1974, the cost of preparing an NSLP lunch increased by about 2.95 cents more than the amount explained by changes in the CPI. With nearly 4 billion meals served in fiscal year 1974, this increase added $118 million to program costs (e.g., 4 billion meals times 2.95 cents). The primary source of program cost increases was in the cost category "local food purchases" (3.41 cents); the secondary source was in the category "other cash expenditures" (1.12 cents). Part of the increase in local food purchases compensated for lower levels of commodity support,1/ but such purchases accounted for less than half of the increase observed in this category.

We do not know of any studies which have investigated the precise cause of these increases, but the relative change in local food purchases and "other cash expenditures" suggests that schools increased the use of convenience foods and labor saving devices (such as disposable utensils).

1/Legislative provisions, effective at the beginning of fiscal year 1975, authorized a minimum level of commodity assistance at 10 cents per lunch, or cash payments in lieu thereof, with provisions that the rate be adjusted on an annual basis to compensate for changes in the CPI for food away from home.

Although these items at times may provide economic advantages, a North Carolina study 1/ has pointed out that this is not always the case. Labor usage may be established by State guidelines which specify in a policy formula the number of workers to be used for the number of meals served at a particular school. In the presence of such guidelines, there may not be an opportunity to reduce labor costs. The introduction of labor-saving features could be an unnecessary expense.

Alternatively, USDA's comments on this report make the important observation that

> "overall program costs have just about kept pace with inflation. Hence differentials in rates of increase in purchased foods compared with other cost components may reflect a deliberate effort to minimize labor costs. Wage rates for cafeteria workers have risen and continue to rise at a relatively rapid pace. Other purchased inputs in part may be substituted for labor. The increased purchases of 'preformed beef patties' in lieu of bulk ground beef and of individual portion pizzas are illustrative. Thus, disproportionate increases in food purchase expenditures need not reflect ineffective management."

Cost variations due to economies of scale

Another factor influencing cost growth is the decline in daily participation levels. During the fiscal year 1970-74 period, the average daily participation per school declined from 276 to 263 students, a 4.7 percent reduction, as shown in the table on the following page.

1/Nicholson, R. H., Some Economic Aspects of the National School Lunch Program in North Carolina, Economics Information Report No. 32, North Carolina State University, Raleigh, N.C., July 1973.

Table 9.4

Average Enrollment and Daily Lunches Served Per NSLP School Fiscal Year 1970-74 (note a)

Fiscal year	Enrollment	Daily lunches served
1970	541	276
1971	540	279
1972	528	275
1973	507	268
1974	515	263

a/FNS/Program Reporting Staff publications.

In general, there is an inverse relationship between the number of daily meals served in a school and the unit cost of preparing a program lunch. Low unit costs are associated with high participation levels, and high unit costs are associated with low participation levels. For example:

--By analyzing fiscal year 1972 data from 160 schools across the Nation, a USDA study estimated that for each additional 100 meals, the unit cost of preparing the type A lunch declines by approximately 3 cents. 1/

--A North Carolina study reported economies of scale in labor costs. The study analyzed scale economies for elementary, junior high, and senior high schools separately. It did not find evidence of scale economies in high school food service operations. However, in elementary and junior high schools, the study reported that labor costs per plate dropped 2 percent for every 10-percent increase in the number of meals served. 2/

1/USDA, Economic Research Service, Cost Structure of School Lunch, Unpublished rept., 1973.

2/See footnote, p. 121.

IMPLICATIONS FOR COST SAVINGS

Given the large volume of lunches served each year, and the large quantities of foods used, we believe that efforts to reduce food costs provide the greatest opportunity for program cost savings. At today's participation levels, each penny saved in meal costs would reduce NSLP expenditures by about $40 million. Some of the areas in which we believe Federal and State governments can act to lower food costs without adversely affecting the program's nutritional standards can be summarized as follows:

1. *Revising USDA's meal regulations to emphasize a nutritional standard rather than the type A meal pattern*. There are a number of indications that NSLP's type A meal pattern may increase the cost of program lunches. (See ch. 5.) Some authorities believe that revising USDA's regulations to focus on a nutritional standard would provide lower cost meals, less plate waste, and higher levels of student participation.

2. *Lowering the protein requirements for the school lunch*. Based on the studies we reviewed (see ch. 3), the Nation's schoolchildren have mean protein intakes well in excess of RDA standards. In this regard, it appears that NSLP's nutritional standards place undue emphasis on protein, usually the most expensive component of the NSLP lunch.

3. *Improving the food procurement economies of small and medium-sized school systems*. USDA and large school systems purchase foods at prices considerably lower than the prices paid by small and medium-sized school systems. (See ch. 8.) It appears that sizeable reductions in program costs might be achieved by: [1]

---

[1] According to ERS estimates (see table 8.4), the average U.S. school pays prices 6.7 percent higher than those paid by USDA or large school systems for comparable food purchases. In fiscal year 1975, approximately $1.808 billion of NSLP foods were bought by schools in local markets. A potential exists to reduce NSLP food costs by more than $100 million per year by improving the food procurement economies of small and medium-sized school systems.

- --States consolidating the food purchasing operations of small and medium-sized school systems to take advantage of volume purchasing economies, 1/ and
- --USDA directing proportionately greater commodity support to those school systems which pay the highest prices for local market food purchases.

State governments can also act to facilitate productivity increases in school food service operations. Although productivity increases in the food service industry have historically been low, some authorities believe the pressure of rising labor costs will necessitate greater improvements in the future. It is not expected, however, that such productivity increases will offset increasing labor costs. Investigation into labor savings by FNS is a continuing effort. Its success will depend largely upon each State's willingness to employ FNS' recommendations and equipment support to offset labor expenses. The introduction of convenience foods and labor-saving equipment in those States with policies requiring a fixed number of workers per meal will, in general, aggravate cost growth.

RECOMMENDATION TO THE SECRETARY OF AGRICULTURE

In light of the potential for cost savings in the food procurement area, we recommend that the Secretary of Agriculture examine approaches and implement procedures for improving the food procurement economies of small and medium-sized school systems.

AGENCY COMMENTS

USDA stated that actions related to our recommendation are currently underway. (See app. I.) A report dealing with the food procurement economies of small and medium-sized school systems is scheduled for completion in this fiscal year.

1/USDA suggests that when a State is composed of both large and small school systems, the development of a centralized purchasing system should be used on a voluntary basis. A compulsory participation arrangement, while helping smaller systems, could penalize the larger ones as they could not capture the savings from advantageous local bids whenever they become available.

CHAPTER 10

FEDERAL, STATE, AND LOCAL SUPPORT FOR THE SCHOOL LUNCH PROGRAM

SOURCES OF NSLP FUNDING

The Federal Government provides assistance to States for serving lunches to schoolchildren. The assistance is provided on a meals-served basis and includes the following:

--*Cash grants*. Section 4 of the National School Lunch Act provides a cash reimbursement rate (general cash-for-food assistance) for all meals served to schoolchildren. Section 11 of the act provides an additional cash reimbursement (special cash assistance) for meals served free or at a reduced price to children from poor or near-poor families. 1/ These rates are adjusted on a semiannual basis (Jan. and July) to reflect changes in the series for food away from home of the Consumer Price Index.

--*Commodity assistance*. Section 6 of the National School Lunch Act requires that

> "* * * the national average value of donated foods, or cash payments in lieu thereof, shall not be less than 10 cents per lunch, and that amount shall be adjusted on an annual basis each fiscal year after June 30, 1975, to reflect changes in the series for food away from home of the Consumer Price Index * * *."

During fiscal year 1974, $316 million worth of agricultural commodities and other foods were supplied to States, of which $67 million represented foods purchased expressly for NSLP (section 6 funds) and $249 million represented commodities contributed through the Federal price support programs and programs for strengthening markets, income, and supply.

Federal assistance rates for the school lunch (effective Jan.-June 1976) are shown on the following page:

1/Special cash assistance for a reduced-price lunch is 10 cents less than the special cash assistance for a free lunch.

Table 10.1

School Lunch Federal Assistance Rates (Jan.-June 1976)

	Type of lunch		
	Regular-price (note a)	Reduced-price (note a)	Free
	(cents)		
General cash-for-food assistance (sec. 4)	12.50	12.50	12.50
Special cash assistance (sec. 11)	-	46.75	56.75
Commodities or cash in lieu	11.00	11.00	11.00
Total	23.50	70.25	80.25

a/Eligibility guidelines for free and reduced-price lunches:

- --Poverty guideline for fiscal year 1976: $5,010 for a family of four. Any child from such a family is entitled to a free lunch.
- --States have the option of increasing their free lunch guidelines up to 125 percent ($6,260) of the Secretary's index.
- --Children from households with an annual income level which falls between the State's guidelines for free lunches and 95 percent above the Secretary's poverty guideline ($9,770) are to be served reduced-price lunches at a price not to exceed 20 cents.

For the 1976-77 school year, the average level of Federal assistance for regular, reduced-price, and free meals is expected to rise to 25.6, 77.3, and 87.3 cents, respectively. 1/

States must match the Federal cash grant for regular-price lunches from sources within the State at a 3-to-1

1/The Budget of the United States Government, Fiscal Year 1977, Appendix, Government Printing Office, Wash., D.C., 1976, p. 173.

ratio and 8 percent of the matching funds must come from State appropriated funds. (For States with below-average per capita incomes, the ratio may be reduced.) Between fiscal years 1974 and 1975, annual contributions from sources within the States increased from $1.97 billion to an estimated $2.14 billion, about 60 percent of which came from students' payments. (Refer to table below.) Traditionally, States have exceeded the matching requirements prescribed in legislation.

Table 10.2

Sources of National School Lunch Program Funding
Fiscal Year 1970-75 (note a)

Fiscal year	Federal contribution (millions)	Percent	Children's payments (millions)	Percent	State & local contribution (millions)	Percent	Total (note b)
1970	$ 565.5	25.5	$1,105.0	49.8	$546.6	24.7	$2,217.1
1971	809.5	32.5	1,090.2	43.7	593.3	23.8	2,493.0
1972	1,050.8	38.5	1,080.4	39.5	599.0	21.9	b/2,730.3
1973	1,142.4	38.6	1,123.7	38.0	692.7	23.4	2,958.8
1974	1,401.4	41.6	1,174.2	34.8	796.8	23.6	3,372.4
1975(est.)	1,702.0	44.3	1,290.0	33.6	850.0	22.1	3,842.0

a/FNS/Program Reporting Staff publications.

b/The program operates on a nonprofit basis. Variations between funding and costs are carried forward as a surplus/deficit to the succeeding year's operation.

c/Differences due to rounding.

FEDERAL FUNDS CARRY INCREASING SHARE OF NSLP COSTS

Between fiscal years 1973 and 1974 the number of regular-price meals declined by 90.3 million and the number of free and reduced-price lunches increased by 80.4 million--an overall decrease of 9.9 million meals served. However, despite the fact that fewer meals were served, the shift to free and reduced-price lunches actually increased the Federal Government's share of program costs:

Table 10.3

NSLP Participation Categories, Fiscal Year 1972-75(note a)

Fiscal year	Millions of meals Regular-price	 Reduced-price	 Free	Percentage of total meals Regular-price	 Reduced-price	 Free
1972	2,686.8	78.6	1,206.7	67.6	2.0	30.4
1973	2,606.4	38.5	1,363.9	65.0	1.0	34.0
1974	2,516.1	45.5	1,437.3	62.9	1.1	36.0
1975(est.)	2,451.2	89.4	1,536.2	60.1	2.2	37.7

a/FNS/Program Reporting Staff publications.

In fiscal year 1976 the serving of reduced-price lunches was changed from a local option to a mandatory requirement for all NSLP schools. Since that time the number of meals served at reduced prices has increased significantly--and so has participation in the free lunch program. The Federal share of program costs has continued to grow.

OBSERVATIONS ON THE DESIGN OF SCHOOL LUNCH SUBSIDIES

Because of the strong possibility for further increases in the free and reduced-price program, several observations on the funding structure should be noted. These are:

--The reduced-price lunch, combined with a 20-cent student charge, provides the least-cost alternative in regard to State and local contributions. The free lunch is, in general, the most expensive alternative. (See table 10.4.)

--The special cash assistance subsidy for a reduced-price lunch, at 10 cents less than the rate provided for a free lunch, increases faster than changes in the CPI (e.g., CPI adjustments are based on the free lunch rate rather than on the rate provided for a reduced-price lunch). This feature is expected to add more than $2 million to Federal program costs in fiscal year 1977.

--The 20-cent ceiling established as the maximum child's payment for a reduced-price lunch does not provide for the absorption of cost increases due to advances in the CPI. Overadjustment of the Federal subsidy (described in the preceding paragraph) compensates for a portion of the increase, but the contributions of State and local governments also need to increase faster than advances in the CPI.

--Current law requires that States must match the Federal cash grant for regular-price lunches from sources within the State at a 3-to-1 ratio and that 8 percent of the matching funds must come from State appropriations. (See table 10.1.) Since there is no requirement for State appropriations to complement the Federal subsidies for free and reduced-price lunches, the continued shift of students to those programs may place an inordinate burden on the resources of some local governments.

Table 10.4

Funding Components of the Fiscal Year 1974 School Lunch (estimated)

	Type of lunch		
	Regular-price	Reduced-price	Free
	(cents)		
Total cost per lunch	83.7	83.7	83.7
Deduct: Federal contribution (note a)	18.2	54.0	64.0
Net cost to States	65.5	29.7	19.7
Deduct: children's payments (note b)	46.3	20.0	-
Required State & local contribution (note c)	19.2	9.7	19.7

a/Includes commodities distributed to States.

b/Assumes 20-cent charge for all reduced-price lunches.

c/State and local contributions for FY 1974 were in excess of this requirement and are assumed to be applied to previous/subsequent deficits.

At present, we believe the Federal subsidy structure has facilitated a cost-effective increase in NSLP's participation levels (i.e., if the funds expended for the reduced-price program were used to increase the Federal contribution to the regular-price program, the increase in participation would be less than that achieved by the reduced-price program). However, it should also be noted that any increases in the cost of preparing an NSLP lunch (in excess of CPI adjustments) must be borne by State and local contributions. The large increases in free and reduced-price participation, combined with a requirement to increase the subsidies for reduced-price lunches faster than advances in the CPI, place a premium on efficient program operations. Any program cutbacks by State or local officials would likely be reflected in the child's payment for a regular-price lunch.

PART V

PROGRAM EVALUATION ISSUES

The Office of Planning and Evaluation, USDA, has defined program evaluation as

> "* * * the formal systematic assessment of the actual performance of ongoing programs in meeting the goals of USDA missions, achieving program objectives, and serving specified target groups. It is concerned with measuring the effects and benefits flowing from programs and their costs. It examines the extent to which program activities have been carried out in relation to the opportunities that have the most favorable benefit/cost ratios or otherwise maximize the beneficial effects in relation to cost."

Chapter 11 addresses the current state of evaluation of NSLP. Unresolved issues and suggested corrective measures are presented for committee consideration.

CHAPTER 11

EVALUATION RESEARCH:

ISSUES, DISCUSSION, AND MATTERS FOR CONSIDERATION

Program evaluation represents one of the most effective tools available for closing the gap between policy formulation and responsive program administration. A well-directed evaluation provides objective evidence on what a program accomplishes, how these accomplishments compare with intended objectives, and how effectively program resources are managed. For Federal programs, good evaluation studies not only help to measure program results but also provide an analytical tool to assist the Congress in apportioning scarce budget resources, in considering revisions to an existing program, and in overseeing program administration.

MAJOR PROGRAM ISSUES REMAIN UNRESOLVED

While this report brings together a great deal of information about various aspects of NSLP, its most important findings are that fundamental issues about the program's impact remain unresolved. Four questions, which we believe are the basic logic steps for evaluating NSLP's effectiveness, have not been satisfactorily answered.

1. What is the program's impact on the participants? Does the program, nationally, safeguard children's health?

2. What is the program's impact on the consumption of agricultural commodities? Do children consume more agricultural products under NSLP than if it did not exist? And how does the change in consumption, if any, affect the Nation's agricultural economy?

3. Is the program reaching the defined target population? To what extent are nutritionally needy children participating in NSLP and what are the health conditions and dietary habits of those who do not participate?

4. To what extent are the specified services provided? And, in relation to alternative ways of providing these services, are program services provided in the most cost-effective manner?

ISSUE DISCUSSION

The National School Lunch Act of 1946 established two major objectives: (1) to safeguard health through a program of nutrition intervention and (2) to supplement farm income by increasing food demand. Over the ensuing years, national priorities changed; NSLP has become primarily focused on one objective--safeguarding schoolchildren's health.

To help meet this objective, the Secretary of Agriculture requires that meals served under the program be designed according to a specified (type A) food pattern which should provide, on the average, one-third of each participant's recommended dietary allowance. This lunch--as designed, served, and eaten--is, in our opinion, one of the most crucial factors affecting program effectiveness. The quantity and type of food included in the lunch largely determine its cost and the amount of agricultural commodities consumed. The price and presentation of the lunch determine how well the program reaches the Nation's schoolchildren. And, the nutritional qualities of the lunch determine how well the program safeguards health.

Health considerations

Although education in nutrition is regarded as a major strategic method for safeguarding public health, it appears that State and local programs of nutrition education have not been completely successful in developing good food habits. Nutrition, the lack or the excess or the quality of it, appears to be a problem for millions of the Nation's schoolchildren. The threat is not overt, as in deficiency diseases such as beriberi or scurvy. It is more complex, often without visible signs, and usually associated with one or more of the following:

--Deficiencies in RDA nutriture, which may impair growth, development, and the ability to withstand infectious diseases.

--Excessive intakes of calories, which may contribute to the development of heart and allied diseases.

--Poor choices in the nonnutrient part of diet, which may contribute to the development of diseases such as tooth decay and, in the opinion of some authorities, hypertension and bowel cancer.

While these problems suggest a need to place greater emphasis on the subject of nutrition education, it should be recognized that such actions are traditionally the prerogative of State and local governments. NSLP's authorizing legislation expressly prohibits the program from imposing any requirement relative to the teaching of nutrition to schoolchildren. The program's health impact, therefore, is directly dependent on the benefits of eating a program lunch.

NSLP's requirement for each lunch to approximate one-third RDA should not obscure the fact that the lunch is but a supplement to a child's home diet. Its effectiveness lies not in its nutritional content alone, but rather in how well it complements the home diet in providing optimum nutrition for the individual.

In our opinion, the design of the NSLP lunch needs to be reassessed. Not only does the program's single meal pattern appear "out of phase" with the needs of schoolchildren, it also has an inherent capability for producing undesired side effects. As set forth in this report, indications are that the current lunch

--provides a valuable source of nourishment for some children;
--may contribute to obesity in others; and
--is relatively ineffective in improving iron nutriture (the most prevalent deficiency reported for schoolchildren).

The issue as to whether or not NSLP provides a net health benefit is complex and riddled with uncertainty. There is some evidence that the school lunch, if paired with a nutritional supplement or with the school breakfast, can improve the nutritional levels of schoolchildren. But, the overall health impact of the NSLP lunch itself is presently unknown.

Agricultural considerations

Few studies have attempted to evaluate NSLP's effectiveness as an agricultural program. We did find consistent indications that NSLP participants consume a greater quantity and variety of commodities at lunch than nonparticipants, but there was no conclusive evidence that this represented and overall increase (at home and at school) in consumption or that such increases were caused by NSLP. Nevertheless, we believe that NSLP, through substantial purchases of foods in local markets and as an outlet for foods acquired under USDA price stabilization and surplus removal actions, has probably strengthened the overall demand for farm products.

There is presently some controversy among school food service directors as to the influence of the type A meal pattern and/or USDA's commodity distributions on NSLP's effectiveness as a nutrition program. The areas of controversy can be summarized as follows:

--Type A meal pattern. School food service personnel appear to be almost evenly divided in their opinions of USDA's type A meal pattern: half believe the pattern is needed to safeguard the program's nutritional standards, and half believe that the pattern inhibits student participation. The latter group emphasizes that one-third RDA can be met in many forms and that the inflexibilities of USDA's food pattern contribute to higher costs, food waste, and a meal design which is not representative of today's eating styles.

--USDA's commodity distributions. Current legislation mandates a guaranteed level of commodity assistance which, except in special circumstances, is provided in the form of foods acquired under USDA price stabilization and surplus removal actions. In essence, a sizeable share of NSLP foods is provided without regard to the menu planner's desires. Many school food service directors believe that USDA's commodity distributions provide high quality foods at substantial cost savings which, by keeping meal prices low, encourage higher levels of student participation. There are, however, many complaints that administrative problems in the timing and quantity of commodity deliveries interfere with menu planning and student acceptance of the NSLP lunch.

In each instance, the points of disagreement appear to be a result of administrative practices rather than legislative requirements. And each of the opposing viewpoints is worthy of consideration.

Present conditions in the Nation's agricultural economy are considerably different than when the program's agricultural objective was enacted (i.e., while significant market imbalances still occur, the agricultural economy is no longer characterized by seemingly permanent excess supply; concern has tended to shift to the problem of shortages and away from the problem of surpluses).

Because of this and because the agricultural objective proclaims that a major purpose of the program is to increase food demand (thereby increasing food prices), the objective itself may no longer be desirable.

Participation considerations

Between 1971 and 1975, an expanded free/reduced-price program substantially increased the participation of low-income children; but, because much of the increase was offset by declines in the participation of regular-price students, overall participation levels tended to remain constant. The shift toward low-income children (the population group with the greatest prevalence of nutritional problems) probably increased NSLP's overall effectiveness as a nutrition program. On the other hand, NSLP became less effective in reaching the regular-price student (a population group containing several times as many nutritionally needy children).

In fiscal year 1975, 44.8 million students (about 88 percent of the Nation's total) were enrolled in NSLP schools. Roughly one-fourth were eligible for free or reduced-price lunches; the remainder had to pay the "regular" price. Of those eligible in each group

--86 percent participated in the free/reduced-price program and
--47 percent participated in the regular-price program.

Of all U.S. schoolchildren who did not eat the NSLP lunch, about 76 percent were "nonparticipants in NSLP schools."

It appears that the NSLP enrollment itself presents the greatest opportunity for further increases in program participation.

Although many authorities have expressed a desire to improve NSLP participation levels, the question remains as to how this can best be accomplished. One method for improving participation would be to lower the price of the NSLP lunch. However, price is not the sole factor influencing participation; daily participation levels are also affected by noneconomic factors such as

--the presence of competitive food sources,
--attitudes of school administrators, and
--menu choice and food preparation.

Available studies, though beneficial in identifying some of the "factors" affecting participation, provide very little quantitative support to assist NSLP decisionmakers in estimating the participation impacts of various policy alternatives. Our research indicates that

--price-participation relationships provide an extremely weak forecasting tool,

--the relative importance (rank) of the individual factors affecting participation has not been fully determined, and

--the "recognized factors" have not been shown to be the major cause(s) for variations in NSLP participation.

Moreover, there is a lack of information about how a change in NSLP participation affects the nonparticipant population--information which is needed to assess the full impact of a participation change and to target the program toward those children in greatest need.

Cost considerations

While it is true that NSLP operating expenses increased rapidly over the 1973-75 period, the cost increases appear to be due primarily to inflation. Discounting the effects of inflation, the cost of producing an NSLP lunch actually declined.

On the other hand, we have some doubt as to whether or not program services are provided in the most cost-effective manner. As set forth in this report, it may be possible to reduce NSLP food costs by more than $100 million per year without sacrificing the program's nutritional impact if Federal and/or State governments act to:

--Revise the program's regulations to emphasize a nutritional standard rather than the type A pattern.

--Lower the protein requirements for the school lunch.

--Improve the food procurement economies of small and medium-sized school systems.

UNITED STATES DEPARTMENT OF AGRICULTURE
FOOD AND NUTRITION SERVICE
WASHINGTON, D.C. 20250

APR 29 1977

Mr. Henry Eschwege
Director, Community and
  Economic Development Division
United States General Accounting Office
Washington, D.C. 20548

Dear Mr. Eschwege:

The enclosure to this letter responds to the General Accounting Office's draft report titled, "Impact and Effectiveness of School Lunch Program: A Synthesis of Evaluation Studies." While the enclosure is offered as the response of the Food and Nutrition Service, we have incorporated the response of the Economic Research Service which was sent to you under separate cover. The Agricultural Stabilization and Conservation Service and the Department's Office of Management and Finance offered no formal comments for inclusion in our report. Beyond the specific points covered in the enclosure we suggest that GAO submit the portion of the report (and summaries) dealing with nutritional aspects of the National School Lunch Program to a panel of nutritionists appointed by a technical advisory group such as the Food and Nutrition Board of the National Academy of Sciences for review prior to its submission to the Congress. 1/

GAO's recommendation regarding the effect of commodity distribution surges on the National School Lunch Program's nutritional objective is not covered in the attached response. The Department's position on this issue is covered in our response to GAO's report CED-77-32 dated January 1, 1977. USDA's statement of actions taken on the recommendations in that report has also been sent to GAO.

We hope you find our comments and suggestions useful as you prepare your final report to the Congress.

Sincerely,

F. Royal Shipp
Acting Administrator

Enclosure

1/GAO does not believe this is necessary since nutritional experts in and out of Government were consulted during the study, and the work reviewed by HEW.

FOOD AND NUTRITION SERVICE RESPONSE TO GAO REPORT "IMPACT OF SCHOOL LUNCH PROGRAM: A SYNTHESIS OF EVALUATION STUDIES"

Organization of Response

This report follows the same organizational pattern as the major GAO report (i.e. not the summary). FNS's comments on each of the five parts of the GAO report are covered under similarly titled sections of this report. Where possible, we have referenced the specific page(s) of the GAO report to which the comments apply.

[See GAO note 4, p. 165.]

General Comments

An overriding theme of the GAO report is the need for " . . . a comprehensive evaluation of the program's effectiveness in meeting its stated legislative objectives." The need for such an evaluation is recognized in FNS.

An evaluation plan projecting FNS' research plans over the next five years has been drafted and is currently under review. This plan calls for development of a methodology for assessing program performance in light of the nutritional objectives contained in our enabling legislation. Because the plan is under review, and therefore subject to change, it is not available for release. We will, however, forward a copy of the plan to GAO as soon as it is available. The Department conducted a comprehensive review of studies of the program in 1974 and submitted it to the Congress in response to Public Law 93-150. This report pulled together all of the existing information on the subject that was available at that time. We note that the GAO made extensive use of this report in its critique of food program evaluations. Our evaluation plans call for another major compilation of existing information in 1981.

As pointed out in the Economic Research Service's comments, the literature review in GAO's report is reasonably complete, but does not indicate to the reader that almost all of the research reported was directly conducted or funded by USDA with professional staff responsible for research oversight. This is a significant omission.

Finally, there are two summaries of the overall report. The first is the separate summary titled "The School Lunch Program -- Is It Working?" The second is PART V of the main report. Consistency between the two summaries and the main report is essential. Thus, any of our comments or recommended changes to the main report which GAO decides to accept, should also be reflected in the two summaries.

PART I - ABILITY TO SAFEGUARD HEALTH

- Program Philosophy and Basis

  References: Page 20, Main Report; Pages 5, 6 & 8 Summary

It has never been the philosophy of the Department that the basis for the NSLP is to serve as a nutrition intervention program to prevent a state of disease. Adequate nutrition will allow for maximum dividends in the maintenance and promotion of health, but cannot guarantee total well-being and absence of disease.

The Department has not evaluated the impact of NSLP on safeguarding the health of the Nation's children. To assess the impact of the NSLP on the overall nutritional well-being of its participants would be difficult. The program is designed to provide a maximum of five meals per week. Assuming that an average of 1/3 RDA is provided through the lunch over the five day period this would be only 20% of the child's total nutritional requirements for that period. It would be most difficult to demonstrate any significant changes among large groups of people as a result of this small amount of food. The complexities associated with determining nutritional status and the lack of standards that contribute to good health and adequate nutrition (as presented in Chapter 3) further complicate the evaluation process being suggested in the report. Because of the relatively small proportion of the total nutritional requirements the NSLP is expected to provide and the complexities associated with determining nutritional status, it is questionable that the study would be successful in accomplishing its objectives.

[See GAO comments on p. 45 of this report.]

- Meal Pattern/Plate Waste

References: Pages 39 & 108, Main Report; Pages 4, 5, 6, 7, 10 & 14, Summary

The nutritional goal for the NSLP is to provide approximately 1/3 or more of the RDA for children of various ages. The RDA's are estimates of the average known nutritional needs of population groups and are not recommended intakes for individuals. Establishing a simple nutritional standard per se would be a misuse of the RDA's. The RDA's are not to be confused with requirements. They are estimates that exceed the requirements of most individuals and thereby ensure that the known nutritional needs of practically all healthy persons are met. The basis for estimation of RDA is such that, even if a person consumes less than the recommended amounts of some nutrients, his diet is not necessarily inadequate for those nutrients.

On page seven of the summary report, GAO refers to "the program's single meal pattern." The program does not have a single meal pattern. The Type A Pattern is based on minimum requirements designed for the 10-to-12-year old child. Varied portion sizes are recommended for older and younger children to meet their specific nutritional needs. The Type A Pattern has been reviewed and revised periodically since development in 1946 to reflect current nutrition knowledge and food consumption habits. While the report criticized the Pattern for its limitations and its appearance as being unresponsive to today's eating habits, it reported that butter/fortified margarine was part of the Pattern. This requirement was deleted in June, 1976 and the report should definitely be modified to reflect this fact. Previously in 1969, the amount of butter/fortified margarine had been reduced from two to one teaspoons. Eliminating this requirement is consistent with the knowledge of possible undesirable side effects of large amounts of fat in the diet. Other changes that have been implemented include: 1) In 1973, the definition of milk was expanded from whole fluid milk to include fluid forms of whole, lowfat, skim, cultured buttermilk and flavored forms of these milks. 2) In 1974, the definition of bread was expanded to include crackers, taco shells, pizza crust, etc. These changes have increased menu planning flexibility within the Pattern while maintaining its nutritional integrity.

[The report has been revised to show the current type A pattern. See pp. 68 and 69.]

The kinds and amounts of foods as specified in the Type A Pattern are based on the four food groups from the Daily Food Guide. These four food groups have served as the basic framework for menu planning by nutritionists for years. We agree with Dr. Mayer's statement from page 5 of the summary that eating habits have changed. However, the flexibility provided by the Type A

Pattern enables menu planners to offer meals which respond to these changes. Dr. Mayer's example of a typical lunch supports the Type A Pattern with the exception of one less fruit or vegetable. Other menu planning approaches will not likely provide greater flexibility than is provided through the Type A Pattern if the nutritional goal is to be maintained. The types and quantities of foods specified by the pattern are those required to satisfy the goal. Consequently, an expression of this goal as a requirement would result in the utilization of approximately the same types and quantities of foods. [See GAO comments on pp. 69 and 70 of this report.]

Three studies have been conducted to compare nutrient standard methods of menu planning with Type A menu planning in school lunch. The study conducted by Colorado State University comparing the manual nutrient standard with Type A did report that no significant differences were found in either student's rating or consumption of menu items between the two methods. However, in the study conducted in the Dade County (Florida) Public School System, consumption and acceptability rates were higher in schools serving Type A menus than in schools serving menus planned by a nutrient standard. Additionally, a similar study in Memphis City (Tennessee) School System also found that students consumed more of the Type A meals than of the meals planned by a nutrient standard. [The report has been revised to acknowledge FNS' comment. See p. 76.]

A frequent criticism has been that the Type A Pattern is not responsive to the protein contributions of food components in the pattern, because credit is not given for the protein in both meat and milk. The pattern does not require meat and milk for protein alone, but for all other nutrients as well. Using iron and thiamin as examples, the goal of 1/3 of the RDA could not be met without the specified quantities of both meat or alternate and milk. Consequently, expressing the requirements on a nutrient basis would not lower the cost of meals.

On page 30 of the main report, GAO states iron-to-calorie ratios were lower for school lunches than children's home diet (based on Ten State Nutrition Survey data). A recent nutrient calculation of the Type A Pattern, based on foods representative of frequency of service to 60 test groups over a four week period shows that the Pattern furnishes approximately 8 mg. iron per 1,000 calories. This amount is well over 6 mg. iron per 1,000 calories which is the amount expected from a varied, well-balanced diet as specified by the RDA's. [See GAO comments on pp. 71 and 72 of this report.]

Accumulating evidence demonstrates that the amount of iron potentially available from foods depends not only upon the amount of iron supplied but the nature of that iron and the composition of the meal with which it is consumed. This fact is demonstrated in the RDA for iron, which bases its requirement on the assumption of an average availability of 10 percent of the food iron. Furthermore, there has been consideration of expressing the requirement by a different method. The total iron content of the diet is thus a relatively poor indicator of the adequacy of the diet with regard to iron. Two of the factors known to affect iron absorption are, the source of iron in the diet and other foods consumed with the supply of iron. The meals served in NSLP have a positive effect on the availability of iron. Listed below are factors that enable the NSLP to positively affect iron nutriture: 1) most meals contain heme iron from meat, poultry and fish - this form of iron is most readily absorbed; 2) the meat/meat alternate component of the NSLP enhances the absorption of iron from other sources; and 3) the NSLP provides a high level of vitamin C which enhances iron absorption.

The statement on page 10 of the summary report (attributed to half of the school food service personnel) that states, "1/3 RDA can be met in many forms and that the inflexibilities of USDA's food pattern contribute to: higher costs, food waste, and a meal design which is not representative of today's eating styles", appears unfounded. Based on the foregoing discussion the statement reflects a lack of understanding of the Type A Pattern and the intent of the RDA's.

[See pp. 74 and 75 and table 5.7 in this report.]

A recent review of the Type A Pattern, based on the 1974 revision of the RDA has led to the development of recommended revisions which are under consideration by the Department. In an effort to reduce plate waste while maintaining the nutritional goal of the lunch program, the revisions would specify minimum meal requirements by age/grade groups, thereby allowing significantly smaller portion sizes for elementary school students while more accurately meeting the nutritional needs of children of all ages.

- FNS Suggestions for Improving Participation and Minimizing Plate Waste

On page 6 of the summary report, GAO states that, " . . . the Type A lunch -- is often presented in a form which discourages student participation and contributes to plate waste." The Food and Nutrition Service shares GAO's concern about program participation and plate waste. However, there are ways of addressing these concerns short of abandoning nationally established meal standards. The following list of activities is suggested as a means to positively effect participation and help reduce plate waste.

Provide Quality Food through Effective Foodservice Management

1. Increase understanding of school foodservice personnel in subjects of good menu planning, quality food production, and imaginative techniques for merchandizing school lunches. Menu planners must be aware of the proper techniques for using the Type A Pattern to provide nutritionally adequate meals using a variety of foods of the kinds and amounts children will enjoy and consume.

2. Develop materials to assist school foodservice personnel in planning menus and writing specifications for pre-prepared foods as well as food handling techniques and serving methods for these foods. Monitoring guidelines should be provided for State and local school foodservice personnel.

3. Implement the recommended revision of the Type A Pattern to provide more flexibility in portion size adjustment according to age groups and to permit use of more conventional foods.

Develop an Awareness of the Importance of Nutrition to Health

4. Direct nutrition education activities toward the emphasis of foods, the development of good eating habits and their relationship to health, growth and development. Nutrition education activities should utilize modern teaching techniques that relate nutrition to day-to-day activities in both the classroom and the lunchroom.

5. Encourage more schools to involve students in the lunch program through activities such as menu planning, cafeteria decoration, and building a student awareness of nutrition and the importance of minimizing plate waste.

Enlist the Support of School Administration and Program Cooperators

6. Emphasize the importance of a complete lunch program in which all persons involved contribute to its effectiveness. Encourage school administrators and teachers to assist the school foodservice manager and students in developing an effective program. Encourage school administrator and teachers to eat with the students and to schedule lunch periods that minimize length of serving lines and provide adequate time for eating. Encourage all school personnel to establish effective communications with parents and the community.

7. Encourage schools to provide choices for elementary and secondary students within each component of the lunch.

8. Encourage schools to eliminate the sale of "snack" foods during the lunch period.

On Page 39 of the main report, GAO indicates that NSLP lunches should be designed to better supplement the school child's home diet. Based on previous discussion in this paper, there is no way to determine and evaluate each participant's specific nutritional needs on a daily basis, let alone produce and serve meals to meet these needs. USDA has consistently encouraged schools to offer a choice in Type A meals, including a salad or diet lunch, in an effort to meet the nutritional needs of various segments of the student population. However, even when varied meals are offered, there is no way to ensure that each student will select the meal most applicable to his/her nutritional needs.

- **Non-nutrient Diet Diseases**

  Reference: Page Summary

The statement on p. 6 of the summary reports that, "Poor choices in the non-nutrient part of diet which may contribute to . . . tooth decay . . . hypertension and bowel cancer", is not sufficiently qualified. The absolute causes as well as the dietary and health practices related to these abnormalities are not known. [See technical note on p. 9 of this report.]

- Caloric Intake and Development of Heart and Allied Diseases

  Reference: Pages 6&7 Summary

On page 7 of the summary report GAO states that, "Indications are that the current lunch -- may contribute to obesity . . ."

[See pp. 45 and 46 of this report.]

The nutritional goal of school lunches is approximately 1/3 of the RDA or more (over a period of one week) for nutrients other than energy. Foods specified in the Pattern will not generally result in a meal containing 1/3 RDA for energy. It is believed to be desirable for lunches to furnish less food energy as a percent of the RDA than for various other nutrients. Many children do not need a comparable high level of food energy at lunch time because food eaten at other meals and snacks frequently provide more than 2/3 of their daily energy requirements. Furthermore, the level of energy is only one of the two important factors contributing to obesity. Exercise is equally important.

PART II - ABILITY TO ACHIEVE AGRICULTURAL OBJECTIVES

In its response to GAO, the Economic Research Service discussed two basic methods of evaluating the NSLP's impact on the nation's economy. Along with their response, ERS transmitted two reports which assessed the NSLP's economic impact using each of the methods. The ERS summarized findings from the more recent of the two reports which was released in September 1976.

[The studies provided by ERS are summarized in ch. 5 of this report.]

In addition, the Department is conducting a survey to determine the kinds and amounts of food used in the nation's schools. This national probability sample of food use will provide information to further evaluate the impacts of the NSLP (and the School Breakfast Program) on the demand for agricultural products. An outside contract for the conduct of this study has been underway for some time. Data collection has been completed and analysis is in progress. At the time of GAO's review, the most recent report on the NSLP's effectiveness in meeting its agricultural objectives was based on data from the early 1960's. However, as mentioned above, since that time a formal evaluation has been released and another is currently underway.

[See GAO note on p. 62 of this report.]

[See GAO note 1, p. 153.]

PART III - PROGRAM COVERAGE

The GAO recommendation (page 90) to improve the reliability of participation projections and determine the relative importance of factors which affect participation, has been an on-going objective of the Food and Nutrition Service. National projections of program participation and costs are updated by the Service on a quarterly basis for internal management and budget purposes. The GAO appears to be under the misconception that the Department uses primarily prices paid by the paying child in its projections of participation. While that is an important variable in assessing the impacts of alternative legislative proposals, trends in past performance, enrollment, free and reduced price eligibility levels and several other nonprice factors are taken into consideration in the development of each national projection. New legislative developments have often been dominating factors. A special study, "The USDA study on High School Participation in Child Nutrition Programs", cited on page 76 of the GAO report, explicitly pointed to a large number of nonprice factors affecting participation in high schools. That study was completed in 1975. FNS agrees that there is a need to prioritize these factors and determine the extent to which they individually and collectively influence participation.

The ERS response discussed several reasons why per capita income is a poor series to adopt as a proxy for household income in evaluating participation. FNS is in accord with the concerns expressed in the ERS response and has similar objections regarding aggregation of prices at the State level to determine the percent of variation in participation explained by price. State agencies do not establish lunch prices for schools within their jurisdiction; price setting is a local function. States report prices which are average prices within States and include individual schools and districts with widely varying prices. Thus, the State is not the appropriate sampling unit to determine the percent of participation variation attributable to price. [See GAO note 2, p. 153.]

FNS also joins with ERS in taking exception to the statement on page 81 that," . . . price-participation relationships reported in the USDA's study would be technically correct for NSLP lunches priced in the 20 to 35 cents range." In USDA's comprehensive study, data from the Pittsburgh study were weighted heavily in projecting participation rates for a broad range of program options. The Pittsburgh study included observations of participation behavior at two prices (20¢ and average of 46.67 cents). Since the Pittsburgh study, FNS conducted an informal study in Fairfax County, Virginia, with price observations up to 60¢. which lends further support to the projections in the Comprehensive Study. Thus, we object to GAO's contention that USDA's analysis was "flawed" because prices in fiscal year 1974 were above the 20-35 cent range.

[See GAO note 3, p. 153.]

PART IV - PROGRAM COSTS

In its response, ERS generally covered the food procurement aspects of program costs, and indicated that increasing labor costs may force substitution of foods which require less labor and are thus more expensive. We agree that disproportionate increases in food purchases need not reflect ineffective management.

The GAO report in assessing the regional cost variations in operating the National School Lunch Program as reported in the Department's comprehensive study of the child nutrition programs, indicated that differences in accounting methods among the States prevented it from determining any meaningful association between costs and program operating efficiencies (page 102). The Department recognizes that the cost data available for that analysis were not sufficient for fully answering the questions posed, partly because of accounting problems. The Food and Nutrition Service has developed accounting instructions which when fully implemented will ensure more standardization in accounting practices throughout the NSLP. The implementation of these instructions has been a major FNS objective for the past several years. With implementation of cost-based accounting, FNS will be in a position to better assess regional cost variations.

The GAO recommendation (page 109) to examine approaches and implement procedures for improving the food procurement economies of small and medium sized school systems is already underway. An outside contract with A.T. Kearney and Company has been underway since last summer to accomplish this objective. A report is expected before the end of fiscal year 1977.

PART V - EVALUATION SYNTHESIS

As mentioned earlier, this section of GAO's report hinges on the preceding sections. Thus, any suggestions previously covered should also be considered in terms of their impact on PART V (as well as the Summary).

In its assessment of evaluation of the program, the GAO did not appear to be aware of the study of the effectiveness of the program conducted for the State of Washington by Washington State University. That study assessed the importance of the program both for low income children receiving free or reduced price lunches and higher income children paying for their lunches. The impact of the Program on the overall diet of recipients was measured, and the nutritional status of participants versus nonparticipants was assessed using biochemical measurements. Food intake data were obtained both from the children at school and from the parents of the children through home visits. Statistical

assessment was made of the net additional amounts of food obtained through the Program upon the total food availability to the household. The report of this study is available on loan from the Information and Educational Materials Center, National Agricultural Library, Beltsville, Maryland.

GAO notes: 1. Comments have been deleted because of changes to the final report.

2. The final report has been changed to reflect ERS' comments regarding the use of "per capita income" as a proxy for household income. (See p. 99.) FNS' objection to the aggregation of prices at the State level is a different matter, and was not addressed by ERS.

All cross-sectional regressions implicitly have an identity problem, that is whether the students included in each school/State of the cross-sectional survey can be treated as being part of the demand curve. Our work, as presented in this report, is based on the average price charged (on a per lunch basis) in each State. The findings are consistent with, and supported by, USDA's own findings in cross-sectional surveys of individual States and in a before-and-after study on the effects of a price increase in Pittsburgh public schools. (See footnotes 2, 1, 2, and 3 on pages 92, 93, and 98, respectively.)

3. FNS reported in its Comprehensive Study of the Child Nutrition Programs that a 10-percent increase in price would cause a 3- to 6-percent decline in paying student participation. Our report states that such a relationship is technically correct only for NSLP lunches priced in the 20 to 35 cents range. ERS' comments reinforce our conclusion by noting that "* * * for every 1 percent they raise the lunch price above 35 cents they will average a loss in student participation of 1.88 percent * * *." In other words, at a lunch price of 35 cents, a 10-percent increase in price would cause about an 18.8-percent decline in paying student participation.

UNITED STATES DEPARTMENT OF AGRICULTURE
ECONOMIC RESEARCH SERVICE
WASHINGTON, D.C. 20250

March 14, 1977

Mr. Henry Eschwege
Director, Community and
Economic Development Division
United States General Accounting Office
Washington, D.C. 20548

Dear Mr. Eschwege:

We have reviewed the draft GAO report on the Impact and Effectiveness of the School Lunch Program as requested in your letter of February 15. Our comments are confined to Parts II-IV since nutritional science is outside our charge.

Our detailed comments are enclosed.

Sincerely,

CLARK BURBEE
Acting Deputy Administrator

Enclosure

UNITED STATES DEPARTMENT OF AGRICULTURE
ECONOMIC RESEARCH SERVICE
WASHINGTON, D.C. 20250

COMMENTS ON GAO REPORT

"THE SCHOOL LUNCH PROGRAM--IS IT WORKING?"

This report presents a synthesis of National School Lunch Program evaluation studies. Although the review of literature seems reasonably complete, nowhere does it give the reader the idea that almost all of the research reported either was directly conducted by the USDA, or funded by it with USDA professional staff responsible for research oversight.

PART II - ABILITY TO ACHIEVE AGRICULTURAL OBJECTIVES

The National School Lunch Program's economic impact can be assessed at various levels within the economy. For instance, identification of the net increase in business receipts received by specified sectors (e.g., agriculture; meat and poultry manufacturing; wholesale trade; retail trade; etc.), as a result of USDA's (a) cash transfers to the States and (b) its purchase and distribution of commodities to schools is one type of comparison. The determination of the tonnage and/or dollar value of increased sales of a particular commodity (e.g., carrots, lettuce, milk) is another.

The GAO's contention that it "could not locate any formal attempt to evaluate the NSLP's impact on the Nation's economy," (p. 52) is not surprising as published reports have been few in number. The most recent was released in September 1976.

[See GAO note 1, p. 162.]

Both this report and an earlier one may be of interest and are enclosed. The September study presents the sector level comparison while the earlier study illustrates the commodity-by-commodity approach. The commodity approach report is dated, but it illustrates the research problems and the kind of findings such an approach yields.

The sector impact approach reports data for as recently as fiscal year 1974. It compares operating results along with simulations of what three alternatives would have yielded if they had been substituted. In 1974, the cash transfer of about $1.1 billion resulted in a net increase in business receipts of $573.2 million and in GNP of $397.5 million. With respect to business receipts, some sectors gained while others would have gained more if there had been no program. Thus, agriculture, food manufacturing, and the wholesale trade sectors gained a total of $942.6 million; whereas other sectors such as the retail trade sector would have gained $106.1 million more without the program. Schools buy primarily from wholesalers and food manufacturers.

Commodity distribution yielded analogous results. In fiscal year 1974 when the USDA purchased $319.2 million of food products which were distributed to the schools, the business receipts for the Nation rose by a net $409.2 million and GNP by $50.2 million. Agriculture, food manufacturing, and the wholesale trade sectors gained $556.4 million in business receipts while retail trade would have gained $41.5 million more in business receipts without it. (For complete details, see the enclosed copy of AER-350.)

The results of each of these studies supports the GAO's belief that "The NSLP has supported domestic demand for agricultural products" (p. 64)--

and, it should be added, the demand for the services of food manufacturing and trade sectors responsible for moving food from farms to school children. However, there were economic opportunity costs. Other sectors would have gained more business receipts without such an increase in the final demand for food. Even so, the net gain for the economy was greater with the NSLP than it would have been without it.

PART III - PROGRAM COVERAGE

FNS administrative reports and studies long have documented that agency's concern for increasing and for accurately forecasting the numbers of program participants. Published and unpublished reports have identified factors which have been viewed as being associated with participation and as of being of use for forecasting numbers of participants. These include those detailed in the GAO report. In considering research directed toward identifying the relative importance of factors which explain participation, priority was given to factors over which the school had substantial degrees of control, e.g., prices and costs of lunches, and also to those which could be meaningfully quantified. This did not include the income variable.

Specifically, per capita income for each State is a poor statistical series to adopt as a proxy for household income because it does not yield measurable associations which are statistically "clean cut." Average per capita State income includes the incomes of households without children, with children who pay fully, on free- or reduced-price lunch participation, composed of old maids or bachelors, and households composed of retired people. The per capita State incomes for Florida and Arizona are affected substantially by their numbers of households composed of retirees.

States have such great variations of income within them that the per capita income statistic is unsuited for between-State comparisons. If each State's within-State income was homogeneous so that the variance within each State was small while differences between States were substantial, the income specification adopted by GAO would hold up--but the present data suggest that this is not the case.

In addition, States which have high proportions of free- and reduced-price lunches would have State per capita income averages not representative of households from which full-pay students come. Thus, even though the model's coefficients have high statistical significance, within an economic context they are very suspect.

The need for a cleanly specified income variable is emphasized when the added factors cited from the literature by GAO are considered. Elementary students usually are relatively captive lunch patrons. They must eat on school premises and typically the only alternative to the Type A lunch provided is a bag lunch. Secondary students have varying degrees of freedom ranging from use of only on-campus facilities or, with both Type A and non Type A lunch, choice of such facilities plus permission to leave the school premises and buy from off-campus sites. The true income impact can be identified only if "all other variables are held constant." Use of an average per capita State income in a regression such as GAO conducted could attribute influence of these other factors to income. In essence, the GAO report places too much emphasis upon a crudely specified regression equation. [See GAO note 2, p. 162.]

In discussing the price-participation relationships, GAO presents data which do not have clear source identification (footnote 1, p. 81, is missing). GAO contends that, "the USDA study is technically accurate only for the 20-35 cent range." Actually, there were several studies conducted independently (Washington State, North Carolina, and two ERS studies) which yielded similar results within this range. Of these, all but one were cross-sectional in character and analogous to the one GAO has developed and reported in its figure 7.1, p. 82. For these cross-sectional studies, the GAO statement is essentially correct. It is only partially correct for the Pittsburg study which was more analogous to an experimentally controlled design than it was to cross-section. The Pittsburg system which had maintained a price of 20 cents for an extended time, had a single price increase to an average price of 46.67 cents. The Pittsburg own-price elasticity at 20 cents however, was almost identical to the cross-sectional studies at 20 cents (-.47 versus -.50). Also, when the Pittsburg and cross-sectional results were placed on a common statistical basis for comparison, the results were similar. Because of the similarity of results in their corresponding price range, the Pittsburg results for the range of 35 cents to 46.67 cents become particularly relevant as they go beyond the other studies. At 31.2 cents the Pittsburg own elasticity was -1.0. Above that price the elasticity rose rapidly. From 35-46.67 cents the average was -1.88. At 46.67 cents its own-point elasticity was -2.95. [See GAO note 3, p. 162.]

No regression equation will necessarily yield a precise estimate beyond the range of data from which it was computed. However, when results from experimentally controlled situations and cross-section data taken independently agree within the same range and observations of the former go beyond those of the cross section, the results from the former can be used to make administratively meaningful decisions. If a School Board recognizes that for every 1 percent they raise the lunch price above 35 cents they will average a loss in student participation of 1.88 percent, actually losing as much as 2.95 percent if they go as high as 46.67 cents, the message would appear to be loud and clear.

In summary, ERS joins the GAO in its recognition of the importance of a well specified income variable for improving forecast models. Unfortunately, ERS has yet to find currently available income series which are adequately specified for this purpose of forecasting school lunch participation. Consequently, until such an adequately specified income variable becomes available, it is analytically questionable to claim that a State per capita income series is a more "important variable" than others, such as price. [See GAO note 2, p. 162.]

GAO's contention is based upon differences in coefficients which they obtained. However, until these coefficients have been standardized even a statistical comparison of relative importance is not possible. In this instance, even if standardized coefficients were different in terms of statistical significance, analytically they would be meaningless because of the crude identification of the income variable.

PART IV - PROGRAM COSTS

Overall program costs have just about kept pace with inflation. Hence differentials in rates of increase in purchased foods compared with other cost components may reflect a deliberate effort to minimize labor costs. Wage rates for cafeteria workers have risen and continue to rise at a relatively rapid pace. Other purchased inputs in part may be substituted for labor. The increased purchases of "preformed beef patties" in lieu of bulk ground beef and of individual portion pizzas are illustrative. Thus, disproportionate increases in food purchase expenditures need not reflect ineffective management.

[The report has been revised to acknowledge ERS' comment. See p. 121.]

While smaller school systems typically could realize savings if they participated in a State- or county-wide buying arrangement, an additional caveat probably should have been added in the original ERS report. When a State is composed of both large and small systems, the development of a centralized purchasing system should be used on a voluntary basis. A compulsory participation arrangement, while helping smaller systems, could penalize the larger ones as they could not capture the savings from advantageous local bids whenever they become available.

[The report has been revised to acknowledge ERS' comment. See p. 124.]

PART V - EVALUATION SYNTHESIS OF THE SCHOOL LUNCH PROGRAM

Many readers will not study this report beyond its summary. Consequently, it is important that the summary be written clearly and accurately. Because of the information presented in the preceding comments and the two enclosures, GAO may wish to revise some of its statements, particularly on pages 120-124. For example, the introductory sentence under the heading, Agricultural considerations, p. 120, needs revision to reflect the added information. The statements at the bottom of p. 122 and the top of p. 123 are questionable. "Current forecasts based on price participation studies are not reliable" is too strong a contention. The use of elasticities of demand can yield workable estimates of what the impact of specified price changes for lunches will have in terms of changes in numbers of participants.

[See GAO note 4, p. 162.]

GAO notes:

1. The final report has been revised to include a summary of the studies provided by ERS. See "Impact on the agricultural economy," ch. 5.

2. The final report has been revised to better qualify the limitations of using "per capita income" as a regression variable. See pp. 99 to 102 of this report.

3. ERS' comments pertain to the lack of clear source identification in an earlier draft of this report. The final report has been revised to clarify the point. (See p. 96.) In essence GAO's contention is that USDA's Comprehensive Study of the Child Nutrition Programs misinformed the Congress by stating that "paying students respond by reducing participation 3 to 6 percent for every 10 percent increase in prices charged." Such a relationship, in GAO's opinion, would be true only for lunches priced in the 20 to 35 cents range. ERS' comments support the contention by noting that "* * * for every 1 percent they raise the lunch price above 35 cents they will average a loss in student participation of 1.88 percent * * *. In other words, at a lunch price of 35 cents, a 10-percent increase in price would cause about an 18.8-percent decline in paying student participation.

4. The statement that "current forecasts based on price participation studies are not reliable" has been revised in the final report to read that "price-participation relationships provide an extremely weak forecasting tool." The interpretation of what constitutes a "workable estimate" in projecting participation levels is, of course, dependent upon the degree of precision required. The limitations of current price-participation forecasts are shown on pp. 96 to 99 of this report.

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
OFFICE OF THE SECRETARY
WASHINGTON, D.C. 20201

APR 1[illegible] 1977

Mr. Gregory J. Ahart
Director, Human Resources
Division
United States General
Accounting Office
Washington, D.C. 20548

Dear Mr. Ahart:

The Secretary asked that I respond to your request for our comments on your draft report entitled, "Impact and Effectiveness of School Lunch Program: A Synthesis of Evaluation Studies." The enclosed comments represent the tentative position of the Department and are subject to reevaluation when the final version of this report is received.

We appreciate the opportunity to comment on this draft report before its publication.

Sincerely yours,

Thomas D. Morris
Inspector General

Enclosure

DEPARTMENT COMMENTS ON GAO DRAFT REPORT "IMPACT AND EFFECTIVENESS OF SCHOOL LUNCH PROGRAM: A SYNTHESIS OF EVALUATION STUDIES"

GAO RECOMMENDATION

That the Secretary of Agriculture:

-- should require a formal, systematic evaluation of the NSLP's performance in meeting legislative objectives. The evaluation should be coordinated to utilize the expertise and resources of the Department of Health, Education, and Welfare (HEW), in all matters pertaining to the health and nutritional status of school children; and to provide effective and timely reporting of information needed for Congressional oversight.

-- with assistance from HEW, determine the nutritional standards needed for the NSLP to best safeguard schoolchild health; and, if found desirable, revise the program's meal regulations to reflect nutritional requirements that will provide menu planners with planning flexibility, improve the program's cost-effectiveness; encourage higher levels of student participation; and reduce plate waste.

DEPARTMENT COMMENT

While we concur with the GAO recommendations, we have concerns, listed below, about the accuracy of some statements in the report and the validity of some of its reasoning. We will, however, assist the Department of Agriculture in carrying out the intent of GAO's recommendations.

TECHNICAL COMMENTS

Following are some areas of the report which should be modified:

1. There are a variety of statements asserting specific relationships between nutrition and disease which, while intriguing hypotheses and which are now being studied, cannot be considered as authoritative fact. For example:
   [See GAO note 1, p. 165.]
   a. References to deficiencies in fiber in the diet causing increases in the risk of bowel cancer. (Page 10);

[See GAO note 2, p. 165.]

2. The report criticizes the regular Type A school lunch because it contributes to obesity in some children and has not been able to improve iron nutriture. Since the report elsewhere concluded that present studies of NSLP are inadequate to evaluate nutritional impact, it is premature to implicate the program on these grounds. This is particularly true since, as the report points out elsewhere, the school lunch provides only one-sixth of the meals of the participants and can, therefore, only be a supplement to home meals.

[See GAO note 3 below.]

GAO notes:

1. The report has been revised to agree with the comment. See "technical note" on p. 9.
2. Comments have been deleted because of changes to final report.
3. See GAO remarks on p. 45.
4. Page references in the agency comments in appendixes I, II, and III refer to the draft report and/or summary, and may not correspond to the final report and summary.

Copies of GAO reports are available to the general public at a cost of $1.00 a copy. There is no charge for reports furnished to Members of Congress and congressional committee staff members. Officials of Federal, State, and local governments may receive up to 10 copies free of charge. Members of the press; college libraries, faculty members, and students; and non-profit organizations may receive up to 2 copies free of charge. Requests for larger quantities should be accompanied by payment.

Requesters entitled to reports without charge should address their requests to:

U.S. General Accounting Office
Distribution Section, Room 4522
441 G Street, NW.
Washington, D.C. 20548

Requesters who are required to pay for reports should send their requests with checks or money orders to:

U.S. General Accounting Office
Distribution Section
P.O. Box 1020
Washington, D.C. 20013

Checks or money orders should be made payable to the U.S. General Accounting Office. Stamps or Superintendent of Documents coupons will not be accepted. Please do not send cash.

To expedite filling your order, use the report number in the lower left corner and the date in the lower right corner of the front cover.

GAO reports are now available on microfiche. If such copies will meet your needs, be sure to specify that you want microfiche copies.